DAF LF DRIVER'S MANUAL

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A PACCAR COMPANY

LF Driver's manual

DW53247403
Printed in the Netherlands

PREFACE

This handbook consists of sections which describe the driving and care of the truck.

At the end of the handbook, there is a general alphabetical index, so that you can locate quickly what you are looking for.

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WHY THIS HANDBOOK IS SO IMPORTANT!

This handbook contains the information which you, the driver, need for optimum efficiency, safety and comfort when operating this vehicle.
Besides giving instructions about operation and use, it also pays attention to maintenance and minor repairs which you may be able to carry out yourself.

For more serious problems, DAF has its own service organisation in Europe: International Truck Service (ITS). For drivers stranded abroad, the ITS switchboard in Eindhoven (the Netherlands) is only a phone call away. It is manned 24 hours a day, 365 days a year, to provide assistance to limit the downtime of the vehicle to a minimum.
To make use of the services of ITS (and to find out under which conditions ITS services are available), please see the European Service Network directory.

NOTE: This handbook is based on the chassis with its fittings as it originally left the DAF factory.

Depending upon the required body and equipment, the bodybuilder may have made fundamental changes to various parts or systems.
The vehicles covered by this handbook consist of various types and models. Individual vehicles are furthermore constructed in accordance with the legal regulations in the country concerned and according to the expected operating conditions. Certain descriptions or illustrations in this handbook may therefore not correspond fully to the situation on the vehicle. However, this has practically no influence on its operation or maintenance.

Repairs

Repairs or maintenance jobs must be carried out by an experienced, properly trained mechanic. This mechanic is also qualified to perform the job in a responsible and safe manner.

Important
Make sure that this handbook is in the vehicle at all times.
Read it carefully **before the first journey**, especially the **'Warnings and safety regulations', 'Instruments and controls', 'Inspections and maintenance'** and **'Driving'** sections.

The operating manual for the tachograph must have been handed over to you when this vehicle was delivered.

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1

1.1 WARNING SYMBOLS

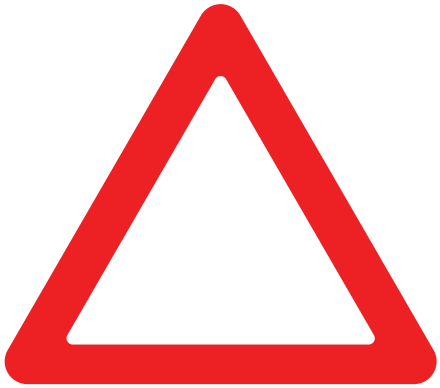
Ignoring the safety instructions and warnings can put health and safety at risk. It can also lead to serious damage to material.

Text accompanied by this warning symbol indicates:

– Risk of personal injury.

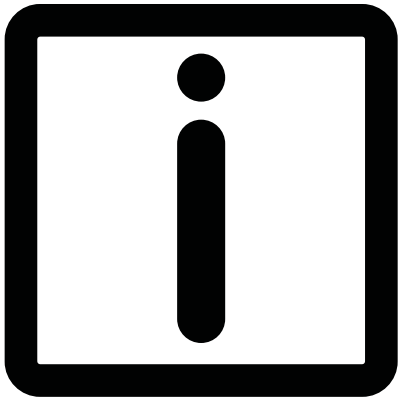
G000497-4

Text accompanied by this warning symbol indicates:
– Risk of material or functional damage.



G000496-3

Text accompanied by this warning symbol indicates:
– Extra attention is required or extra information is provided.



G000987-3

1.2 BEFORE YOU START DRIVING

Calibrating Tyre Pressure Indication (TPI)

If the vehicle is equipped with Tyre Pressure Indication (except vehicles with steered trailing axle), this system needs calibrating before the vehicle is taken into service. See section 'TPI (Tyre Pressure Indication)' in chapter 'Driving' for the proper procedure.

1.3 WARNINGS AND SAFETY REGULATIONS

WARNING! Not observing the following safety regulations can seriously jeopardise one's health and safety and can damage the vehicle and lead to hazardous situations.

- ***Always observe the safety instructions in this manual and do not ignore them.***
- ***Also read the instructions and warnings on the labels and stickers on the various components of the vehicle and comply with them. They have been put there for your health and safety, so do not ignore them.***

Modifications to the vehicle

Modifications to the vehicle or the vehicle configuration may require the reprogramming of electronic control units by an approved DAF Service dealer.

Cabin

Make sure that there are no loose objects on the floor on the driver side. Loose objects may interfere with operating the pedals while driving, giving rise to extremely dangerous situations.

While driving a vehicle with a manually operated gearbox, do not use the clutch pedal as a foot rest since this may cause excessive wear of the clutch.

Parking

Observe the following when parking on a slope, slippery surface, and so on.

1. Put wheel chocks in front of and behind the wheels of the driven axle.
2. Angle the wheels so that the vehicle does not move into the traffic stream if it is accidentally set in motion.

Safety belts

Always use the safety belt (obligatory in some countries).

Vehicles that are equipped with an airbag always have safety belts with tensioner on both the driver seat and the co-driver seat. To guarantee proper operation of the airbag, it is absolutely essential that the safety belts be used.

If the vehicle is equipped with VSC (Vehicle Stability Control) the vehicle may unexpectedly brake hard in certain situations; therefore always wear safety belts.

Safety belts only work properly when correctly tensioned. For that reason, never use a clip or other device to reduce the safety belt tension.

First aid kit

Make sure that there is always a first aid kit in the vehicle (obligatory in some countries). Replace first aid items as soon as possible after use or expiration date to make the kit complete again.

Fire extinguisher

Make sure that there is always a fire extinguisher in the vehicle (obligatory in some countries). Secure it well within the driver's reach and so it is also easily accessible for rescue workers and others providing assistance. Have the fire extinguisher checked for operational readiness each year. Have a used extinguisher refilled at the earliest opportunity.

If there is a fire:

Certain plastic seals can produce gases which, together with water, form a corrosive acid. Therefore, do not touch any fire extinguisher fluid on the vehicle without protective gloves.

Hazard warning triangle

Make sure that there is always a hazard warning triangle (obligatory in most countries) in the vehicle, possibly in combination with other marking equipment.

If a breakdown occurs en route, wear reflective clothing when outside the vehicle (obligatory in some countries).

Components

Remain at a safe distance from rotating and/or moving components.

During regeneration remain at a safe distance from the exhaust and do not stand on the catwalk above the DPF as it can be extremely hot.

Tilting the cabin

If a cooler box or refrigerator has been fitted in the cabin, switch it off and if necessary unplug it before tilting (depending on the type).
Leave the cooler box or refrigerator switched off for at least 30 minutes after the cabin has been tilted back.

Place wheel chocks in front of and behind the driven axle.
Make sure that all loose objects are removed from the cabin to prevent damage.
Tilt the cabin fully forwards; in this way it cannot fall back accidentally.

Following a collision, only tilt the cabin in an **emergency situation**.
The tilting mechanism may be damaged.
(The end stop of the lift cylinder may not work.)

Always use stands to support the chassis when working under a vehicle which rests on a jack.

Lighting

To replace lighting bulbs, the following conditions must be met:
- The lights are switched off.
- The ignition is switched off.
- De-energise the lighting system by removing the fuses for the lights.
- Let the lighting unit cool down before touching it. Risk of personal injury!

After replacing a light, have the headlight setting checked by a DAF Service dealer at the earliest opportunity.

Engine

Exhaust gases contain carbon monoxide, an invisible, odourless, but highly toxic gas. Inhalation of these gases may cause unconsciousness and death.
Do not run the engine in an enclosed or unventilated area.
Make sure that exhaust gases are properly extracted.

A poorly maintained, damaged or corroded exhaust system can allow carbon monoxide to enter the cabin. Entry of carbon monoxide is also possible from other vehicles nearby. If the maintenance of the vehicle is poor, this may lead to carbon monoxide entering the cabin or sleeper, causing serious illness. Never idle the engine for prolonged periods of time. If you smell or sense exhaust fumes, investigate the cause of the fumes and correct it as soon as possible.

Never leave the engine idling without a driver present for too long. This can increase the risk of personal injury and/or vehicle damage. If the engine overheats, as indicated by the engine coolant temperature indicator, immediate action is required to correct the condition. Continued unattended operation of the engine, even for a short time, may result in serious engine damage or a fire.

Cooling system filler cap

Do not remove the filler cap of the cooling system when the engine is at operating temperature. Do not loosen the filler cap of the cooling system when the cabin is tilted.

EAS (Emission Aftertreatment System)

The vehicle complies with the current European emission legislation standard Euro 6.

To meet this stringent legislation, the engine has Exhaust Gas Recirculation (EGR), Selective Catalyst Reduction (SCR) with a urea (AdBlue) dosing system and a Diesel Particulate Filter (DPF). Combined, they are referred to as the Emission Aftertreatment System (EAS).
For this system to operate properly, it needs AdBlue and the DPF must be cleaned (regenerated) periodically.

NOTE: The Diesel Particulate Filter (DPF) is, for example on the master display, also referred to as the soot filter.

Due to legislative requirements, it may be a criminal offence to continue driving the vehicle when the exhaust gas emission is above legal limits.

To avoid malfunction and damage to the system, it is important to adhere to the following precautions:
– Refuel with diesel of the prescribed quality to prevent damage to the Emission Aftertreatment System. See section 'Diesel fuel' in chapter 'Technical data'.

- The vehicle informs the driver when the Diesel Particulate Filter (DPF), which is part of the Emission Aftertreatment System (EAS), needs maintenance. To prevent standstill, make sure to do so in time. See section 'Regenerating DPF' in chapter 'Driving'.
- Fill the AdBlue tank directly with AdBlue supplied by DAF or any other supplier (always from the original packaging). Use official AdBlue filling equipment. Filling up the AdBlue tank using a dedicated filler gun results in a maximum fill volume of 80%. See section 'Refuelling diesel and refilling AdBlue' in chapter 'Driving'.
- Always fill up the system with 100% clean AdBlue of the prescribed quality. See section 'AdBlue' in chapter 'Technical data'. Never use contaminated AdBlue or contaminated canisters or funnels to fill up the AdBlue tank.
- Avoid diesel mixing with AdBlue in the AdBlue tank: Always use 100% clean canisters and funnels that have not been used for any other liquids, such as diesel or petrol.

Legislation requires that, if a number of conditions are detected, an engine power derate eventually followed by a vehicle speed limit are applied.

When such a condition is detected, warnings appear on the master display of DIP-5. If the warnings are ignored, an engine power derate of 25% is applied after a certain amount of time.
Continuing to operate the vehicle in this condition eventually results in the vehicle speed being limited to 20 km/h. These conditions are:

- The AdBlue tank is filled with the wrong quality or contaminated AdBlue.
- AdBlue tank level is low or too low, or the tank is empty.
- Malfunctioning of the AdBlue system (for example, AdBlue dosing is interrupted or primary input signals for the system fail).
- Impeded EGR valve.

Engine power derate symbol.

NOTE: Derate is activated at vehicle standstill or engine idle if the vehicle speed sensor has failed.

When the malfunction that has occurred is eliminated, derate is deactivated and full engine power is available.
Derate is deactivated at vehicle standstill or engine idle if the vehicle speed sensor has failed.

NOTE: Emission levels can also rise above legal limits as a result of malfunctions in the engine and or EAS system. These also generate warnings on the master display of the DIP-5 and can activate engine power derates in excess of 25%.

Oils and lubricants

Various kinds of oil and other lubricants used on the vehicle may constitute a health hazard when they come into contact with the skin.
This also applies to engine coolant, windscreen washer fluid, refrigerant in air conditioning systems and diesel fuel.
So avoid direct contact as much as possible.

The engine and surrounding area must be free of flammable materials to avoid the risk of fire.

Exercise caution when changing hot oil; it can cause serious injury.

Air conditioning system

The air conditioning system contains refrigerant under high pressure. Removal of any parts of the air conditioning system is not permitted. Only qualified personnel may perform activities on the air conditioning system. Contact a DAF Service dealer.

If the air conditioning fails, have it repaired by a DAF Service dealer as soon as possible to avoid further damage to the system.

Load

Always secure the load well so that it cannot move, not even during an emergency stop. Remember that side walls, partitions, and so on are often not designed to withstand high forces.
Loads must not project more than the local regulations permit.
The load influences the stability of the vehicle, and a larger turning circle may be necessary.
When loading, make sure that the following values are not exceeded:

– Maximum permissible gross combination weight (GCW).
– Maximum permissible gross vehicle weight (GVW).
– Maximum permissible axle load.

Coupling and uncoupling a semi-trailer

Before coupling or uncoupling a semi-trailer to or from a vehicle with a lifting axle, the driver must lower the lifting axle. This prevents the lifting axle from dropping unexpectedly. If the axle pressure permits this, the axle can be raised after coupling the semi-trailer.

Trailer coupling

Before every drive, check if the trailer coupling is locked properly and if the air hoses and electrical connection are connected properly.

Fifth wheel

Before every drive, check if the fifth wheel is locked properly and if the air hoses and electrical connection are connected properly.

Loading and unloading a coupled semi-trailer

Before loading or unloading a semi-trailer with a lifting axle, the driver must lower the lifting axle. This prevents the lifting axle from dropping unexpectedly. If the axle pressure permits this, the axle can be raised after coupling the semi-trailer.

Vehicle lock on a ferry, for example

To lock the vehicle at the front, the towing eyes on both the left and right sides must be used.

Never use the leaves of the rear suspension to lock the vehicle at the rear.

Winter conditions

During winter conditions, pay special attention to the following items, amongst others.

- Make sure (especially in mountainous areas) that winter tyres or snow chains are installed on the vehicle.
- Before operating the windscreen wiper blades, check that the blades are not frozen to the windscreen, otherwise they could be damaged. To prevent the blades freezing to the windscreen, something can be placed between the blades and the windscreen.
- If the tank has been filled up with winter diesel, allow the auxiliary heater to run on the new fuel for half an hour. Make sure that all the old fuel is used up.
- When freezing, AdBlue expands more than plain water. If the vehicle is parked or stored for more than 48 hours under conditions of minus 20°C or more, it is advised not to fill the AdBlue reservoir to more than 75%. This is to avoid possible damage to the AdBlue reservoir, for example.

Environment

Pollution constitutes a serious threat to the environment. To keep pollution to a minimum, DAF recommends the following rules:

- Make sure that the vehicle is serviced regularly according to the instructions and recommendations of DAF. A properly serviced vehicle helps to optimise fuel economy and reduce the level of harmful constituents in the exhaust gases.
- If circumstances require maintenance work, observe the environmental protection requirements.
  When disposing of service products, do not dump, for example, used oil, fuel, lubricants, hydraulic fluid, AdBlue or coolants in drains, sewers, landfills or on the ground. This is illegal.
  This also concerns all parts, for example, filters, that have been in contact with service products. Dispose of empty containers, cleaning cloths and care products in an environmentally responsible manner. Observe the instructions for care products.
  Return these products to the designated authority or appropriate chemical waste collection company for recycling or destruction. Store these fluids separately.
- Only wash the vehicle at a wash bay designed for this purpose. Dispose of empty containers and used cleaning products in an environmentally responsible manner.

1

1.4 AIRBAG SAFETY INSTRUCTIONS

Vehicles equipped with an airbag and safety belt tensioner system have a sticker with the airbag symbol on the windscreen. In addition, there is an identification 'AIRBAG' visible on the steering wheel. A vehicle equipped with an airbag also has an automatic safety belt tensioner.

WARNING!

– ***Do not use equipment or objects using strong electromagnetic radiation in the vicinity of airbag/safety belt tensioner systems.***

Such equipment or objects may cause this system to fail. In extreme cases, they may cause the system to be activated and can result in dangerous situations and injury.

Inspections

– The airbag and safety belt tensioner system only functions correctly if:
  – After switching on the ignition, the airbag warning symbol appears on the master display and disappears after approximately 5 to 10 seconds.
– The system does not function correctly if:
  – After the ignition is switched on, no airbag warning symbol appears on the master display.
  – After the ignition is switched on, the airbag warning symbol on the master display changes into an airbag warning after approximately 10 seconds.
  – The airbag warning appears on the master display when driving.
– If the system detects a fault, it is unable to activate the airbag and/or safety belt tensioners and there is no extra protection in the event of a collision. Have the fault remedied by an approved DAF Service dealer as soon as possible.

Maintenance

– Clean the airbag cover with a dry or damp cloth only. If it is heavily fouled, ask a DAF Service dealer for a DAF approved cleaning agent.
– After a maximum of 15 years the main components of the airbag and safety belt tensioner system including the electronic control unit must be replaced by a DAF Service dealer.

WARNING!

– ***Do not stick anything to the airbag cover.***
– ***Do not treat the cover with a cleaning agent, solvent, grease, paint, lacquer or other substance.***

Applying objects to the airbag cover can damage the cover. This can lead to uncontrolled fragmenting of the cover during deployment of the airbag and can cause unnecessary injury.

Operation

- The airbag and safety belt tensioners are activated in the event of a (near) head-on collision when a specific vehicle deceleration is exceeded. The airbag and safety belt tensioners are not be activated when:
  - The ignition is switched off.
  - The vehicle is involved in a minor head-on collision.
  - The vehicle is involved in a lateral collision.
  - The vehicle is involved in a tail collision.
  - The vehicle overturns.
- The system only provides optimal protection when the safety belt is correctly worn and the seat, safety belt and steering wheel are well adjusted to the driver.

WARNING!

- ***Do not rest any body part (torso, hand, head, foot) close to the airbag cover.***
- ***Hold the steering wheel by the outer rim as much as possible to allow unimpeded deployment of the airbag.***
- ***Keep the space between the driver and airbag free.***
- ***Nothing must be placed between the driver and the airbag, that is, no animals, no objects and no other persons.***

Keeping body parts or other objects unnecessarily close to the airbag cover can cause unnecessary injuries in case the airbag is activated.

Activation

- If the airbag is activated in a collision, a white powder is released. This is in no way an indication of fire. The powder itself is not harmful.
- The airbag and safety belt tensioners can be activated only once. After activation of the system, have the parts replaced by a DAF Service dealer to provide the same protection.
- In the event of a minor collision not causing the airbag and safety belt tensioner system to be activated, it is still recommended to have the system checked by a DAF Service dealer.

NOTE: The airbag fabric can cause slight injury because of the rapid movement of the airbag during activation. People wearing spectacles and persons smoking when driving run an increased risk of facial injury in a collision involving deployment of the airbag. Usually the injuries are by no means as serious as the injuries that may occur in a collision without airbag and safety belt tensioners.

WARNING!

- ***Do not touch any parts of the airbag/safety belt tensioner systems after deployment.***

After deployment the parts of the airbag/safety belt tensioner systems may be hot. Touching these parts can cause burns or serious injury.

Work

– Observe the DAF safety precautions when repairing, removing or replacing the airbag or safety belt tensioner system or parts thereof. For this reason, have this work carried out by an approved DAF Service dealer or DAF workshop only.
– Do not make any modifications to the airbag and safety belt tensioner system or parts thereof. This would cause an injury hazard and correct activation can then no longer be guaranteed.
– Observe the DAF safety precautions regarding the airbag and safety belt tensioner system when the vehicle is scrapped or dismantled.
– Retrofitting of accessories is only permitted if the accessories are approved by DAF for vehicles with an airbag and safety belt tensioner. Installation must take place at the position indicated by DAF and according to the procedure specified by DAF.
– When replacing the windscreen, observe a longer drying time for the windscreen sealant. This longer drying time is usually stated on the windscreen sealant packing or tube. If in doubt, contact DAF or the windscreen sealant supplier.
– If any welding is required, observe DAF's safety precautions for welding jobs.

Sales

– If the ownership of the vehicle is transferred, the previous owner must make the new owner aware of the above instructions.

1.5 AEBS/ACC SENSOR

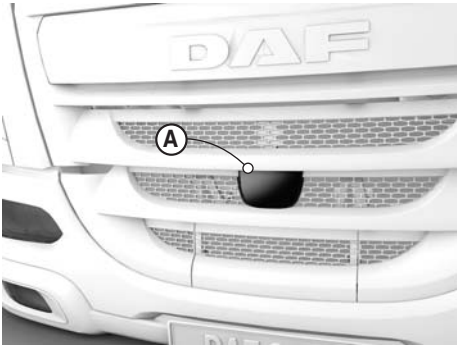
Both Adaptive Cruise Control (ACC) and Advanced Emergency Braking (AEBS) use a radar sensor to detect objects in front of the vehicle.

The radar sensor can detect objects up to 150 metres in front of the vehicle. The radar sensor measures speed, distance and lateral position of the object or vehicle in front. To determine what 'relevant' objects are, all objects are divided in three categories:

– Moving in the same direction.
– Moving in the opposite direction.
– Stationary.

NOTE: The radio emission of the radar sensor is way below legal limits and therefore in no way harmful to the driver or any other person.

This sensor is located behind a cover plate (A) in the grille of the vehicle.



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CAUTION: Obstructing the AEBS/ACC sensor results in malfunctioning of the sensor, which can cause dangerous situations.

- ***It is not permitted to paint, sticker, glue, plaster or in any other way obstruct:***
  - ***the front or rear area of the grille in front of the AEBS/ACC sensor (A),***
  - ***the space between the sensor and the grille or***
  - ***the sensor itself.***
- ***Do not install accessories or other objects in front of the AEBS/ACC sensor.***
- ***Keep the cover (A) of the AEBS/ACC sensor clean.***

NOTE: Scratches or holes in the cover plate (A) can affect the functioning of the ACC and/or the AEBS. Consult a DAF Service dealer if the cover plate (A) is damaged.

AEBS/ACC sensor dirty

The **'Distance sensor dirty'** warning is activated when the sensor cover and/or sensor is too dirty to operate properly. ACC and/or AEBS can no longer be engaged. Clean the sensor cover if this warning is active. Consult a DAF Service dealer if the warning remains after cleaning.

D001713

NOTE: This warning can also be displayed when there are very few or no objects on and beside the road, in front of the vehicle.

1

1.6 TECHNICAL ITEMS OF SPECIAL IMPORTANCE

To prevent damage to the vehicle, the following instructions must be strictly observed.

Original components

To meet the warranty conditions and guarantee the service life, safety and reliability of the DAF products, the use of **non-original** components and software is not permitted and in some cases even illegal. The application of software, software settings and/or components not approved by DAF adversely affects critical systems in terms of the safety of the vehicle (for example, the brake system) or can lead to an engine power derate.

The following technical items of special importance apply to both the running-in period and to the period thereafter.

After a cold start, use a low gear and drive at a moderate engine speed until the engine coolant temperature is out of the blue zone.

While driving, check **the instrument panel** regularly and take appropriate action if there is anything unusual.
Unusual operation may include strange engine and transmission noises, smoke or poor performance.
Do not let the engine **idle longer than necessary**. This is harmful to the engine and also causes unnecessary pollution of the environment.

Be aware that **engine stalling** while driving leads to power steering failure. Consequently, vehicle steering is more difficult.

Before switching off the engine **after a long trip or when the engine has been subjected to high loading**, let it idle for at least 5 minutes. Let the engine run for a while to prevent the coolant temperature becoming too high and to allow the turbo charger to cool down.

The engine cooling system is thermostatically controlled.
Removing the thermostat when the coolant temperature is (too) high is strongly advised against, since this causes the engine temperature to rise to an even higher level.

The **turbo charger** is a precision component. Immediately report any abnormal noises produced by this component.

Running-in

During the running-in period it is best not to subject the new vehicle to excessive loads. This also applies when an overhauled engine, gearbox or differential has been installed. Therefore, drive carefully and avoid accelerating sharply for the first 1500 km.

System voltage

The vehicle is equipped with a **24-volt** electrical system.
When replacing or fitting electrical or electronic components, always check that the new components are suitable for this system voltage.

Connecting accessories

Never connect accessories or any other electrical components to the vehicle by splicing the vehicle wiring or connecting it to electrical components. Failure to meet these conditions may have serious consequences on the electrical systems within the vehicle and can result in short circuits and fire.
Only connect accessories to the designated accessory plug connectors in the dashboard panel or cigar lighter, bearing in mind the maximum permissible power. It is also possible to connect accessories to the designated accessory connectors in the vehicle in consultation with a DAF Service dealer.

Batteries

The vehicle is equipped with a set of two 12-volt batteries.

CAUTION:

– ***Do not disconnect the battery cables while the engine is running. Disconnecting the battery cables while the engine is running can damage the electrical components in the vehicle.***

Always disconnect the battery earth cable before repairing or servicing the electrical system. Only disconnect the battery earth cable after switching off the ignition and waiting 90 seconds.
Failure to meet these conditions may have serious consequences for various electrical systems within the vehicle.
Never place tools on a battery. This may cause a short circuit and may even cause the battery to explode.

Battery capacity

When the engine is not running, the use of electrical components such as the auxiliary heater or refrigerator draws power from the batteries.
Approximately half the battery capacity is required to start the engine.

If such components are used over a prolonged period, particularly during low temperatures, they may eventually use so much power that there is not enough left to start the engine.

Main switch

Only switch off the main switch after switching off the ignition and waiting 80 seconds. The afterrun phase EAS (Emission Aftertreatment System) must have ended before operating the main switch.

WARNING!

– ***Never operate the main switch while driving.***
– ***Never operate the main switch while the ignition is on.***
Operating the main switch while driving switches off all electrical systems and the engine. This can lead to very dangerous situations and damage to the vehicle electronics.

Air leakage

If the **pressure in the air reservoirs** drops rapidly with the engine switched off, this indicates a leak. Since this affects the safety of the brake system, trace and repair the leak as quickly as possible.

Steering

The steering gear is hydraulically assisted. As excessive pressure may damage the hydraulic pump, stop turning the steering wheel when the wheels are at full lock or are blocked by an obstacle. If this is ignored, the steering gear may be damaged.

Differential

The differential can be equipped with a differential lock. This differential lock may only be used when driving on soft ground or on a slippery road surface.

CAUTION:

– ***When excessive wheel slip is detected, observe the directions for use and engage the differential lock.***
Excessive wheel speed difference between the wheels on an axle when driving on soft ground or on a slippery road surface can lead to serious damage of the differential.

CAUTION:

– ***Never press the accelerator when the vehicle rolls off in the opposite direction to that of the engaged gear.***
If the vehicle rolls off in the opposite direction to that of the engaged gear, the differential may be overloaded or damaged when the accelerator is pressed.

Mobile telephones and transmitters

WARNING!

– ***Do not use mobile telephones or transmitters in the cabin without a separate outside aerial.***
The use of mobile telephones or transmitters in the cabin interior may cause excessively high electromagnetic fields (resonance effect). This may interfere with the operation of the vehicle electronics and result in dangerous situations and injury.

If mobile telephones and transmission equipment are used, take the following points into account:

– Do not use mobile telephones or transmitters in the vehicle when there is no separate outside aerial!
– Moreover, an outside aerial is necessary to achieve the maximum range of the equipment.

NOTE: Observe the instructions for use of mobile telephones and transmitters!

Welding

For welding instructions on the vehicle and/or superstructure, consult a DAF Service dealer.
Not following the welding instructions can damage the electronic components.

1

Alarm system 2

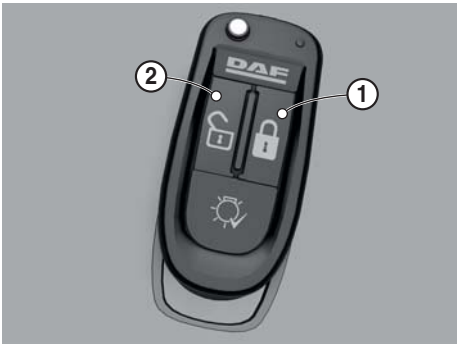
2.1 THE THEFT PREVENTION SYSTEM

The DAF theft prevention system consists of several forms of protection, each of which protects the vehicle in a different way:

– The immobiliser (electronic drive-off lock) prevents the engine from being started without the correct ignition key.
– The alarm system (ALS-S). ALS-S makes sure that when unauthorised persons gain access to the vehicle, this can be seen and heard from the outside via acoustic and visual alarms.
  A system LED blinking indicates that the theft prevention system is activated.

NOTE: If a vehicle does not have an alarm system (ALS-S) but it does have an immobiliser, there is always a system LED. This LED flashes at a low frequency when the ignition is switched off.

2.2 USING THE IGNITION KEY OR HAND-HELD TRANSMITTER



D001668

Unlocking the doors

Pressing button (2) unlocks the driver's door and switches the delayed interior lights on. The alarm system (ALS-S) is then also deactivated. The hazard warning lights flash three times to indicate the alarm system is deactivated.
If the unlock button is pressed a second time within three seconds after unlocking the driver's door, the co-driver's door will be unlocked.

NOTE: If no door is opened within 30 seconds after unlocking, the doors automatically re-lock.

Locking the doors

A short press of about one second on button (1) locks both doors. The alarm system is then also activated. The hazard warning lights go on for three seconds.
The system LED will flash at a slow rate after approximately 50 seconds. The alarm system is now fully operational.

The doors, cabin tilting mechanism, interior and loading space (if this has an alarm system) are now protected.

NOTE:
- *Make sure that there is nothing in the interior that can cause a false alarm, for example moving objects in the cabin.*
- *A wireless network (LAN) inside the cabin has influence on the alarm system. When a notebook PC with a wireless network is on inside the cabin and the alarm system is switched on, the alarm can go off unintentionally. Therefore always switch off the notebook PC with a wireless network or switch off the interior protection before activating the alarm system. See section 'Use when staying in the cabin' in the chapter 'Alarm system'.*
- *Do not press the buttons unnecessarily hard.*

NOTE: In addition the ignition key or hand-held transmitter can be used to perform a manual exterior lighting check. See section 'Exterior lights'.

2.3 SELF-DIAGNOSIS

The alarm system (ALS-S) has an extensive self-diagnostic function. Following activation, all detection circuits (for the interior, load space, cabin tilting mechanism and doors) are automatically tested.

If a fault is found in one or more of these detection circuits, the affected circuits are switched off. This is made noticeable by a short signal from the siren immediately after activation of the alarm system.

If this signal is heard, first of all check whether the windows and doors are closed properly.
Switch off the alarm system, close everything carefully and switch on the alarm system again. See section 'Using the ignition key or hand-held transmitter'.
If the short signal is heard once again, this means that the system is (partially) defective. Visit a DAF Service dealer to check the system.

2.4 USE WHEN STAYING IN THE CABIN

If people remain in the cabin, the system may only be activated if the cabin interior detection is switched off. This avoids unnecessary sounding of the alarm.

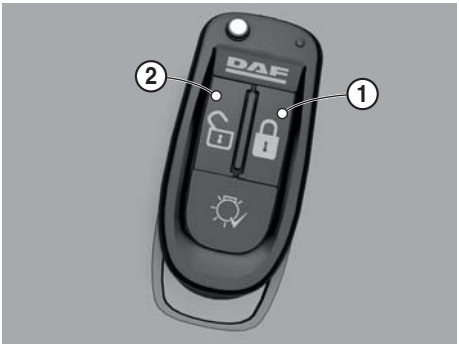
*NOTE: If the interior detection is **not** activated, the alarm **still works** on the doors, the cabin lock and cargo space. The start lock is also activated.*

The cabin interior detection is deactivated as follows:

1. Deactivate the alarm system.

2. Press the 'Alarm cabin interior detection off' switch. The system LED lights up for approximately 2 seconds.

3. Then activate the alarm system with button (1) on the ignition key. The cabin interior detection has now been switched off. It is then possible to stay in the cabin while retaining the other detection options.



D001668

Switch off the entire system using button (2) on the ignition key or hand-held transmitter if the cabin is left from time to time.

Outside the vehicle, the choice can be made between:
– not activating the alarm system, or
– activating the alarm system with button (1) on the ignition key or hand-held transmitter.

NOTE: On returning to the cabin, carry out the procedure once again to deactivate the cabin interior detection.
The 'Alarm cabin interior detection off' switch is spring-loaded and returns to the original position. Deactivating and activating the alarm system therefore reactivates the cabin interior detection.

2.5 DEACTIVATING THE SUPERSTRUCTURE OR TRAILER CARGO SPACE DETECTION

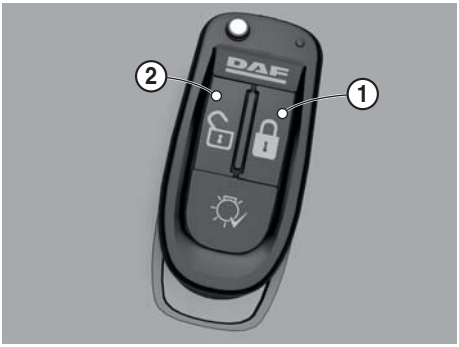
If people remain in the cargo space, the system may only be activated if the cargo space detection is switched off. This avoids unnecessary sounding of the alarm.

*NOTE: If the cargo space detection is **not** activated, the alarm **still works** on the doors, the cabin lock and the cabin interior. The start lock is also activated.*

Deactivate the cargo space detection as follows:

1. Deactivate the alarm system.

2. Press the 'Alarm cargo space detection off' switch. The system LED lights up for approximately 2 seconds.
3. Then activate the alarm system with button (1) on the ignition key or hand-held transmitter. The cargo space detection has now been switched off. It is now possible to stay in the cargo space while retaining the other detection options.



D001668

To protect the cargo space again, switch off the alarm system and switch it on again.

NOTE: The 'Alarm cargo space detection off' switch is spring-loaded and returns to the original position. Deactivating and activating the alarm system therefore reactivates the cargo space detection.

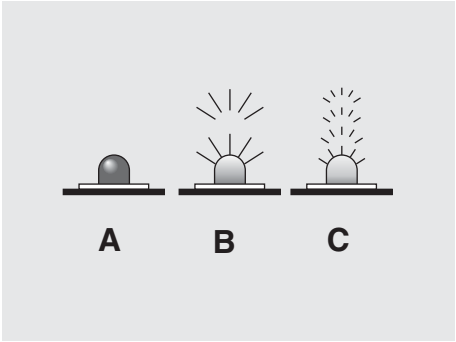
2.6 THE SYSTEM LED

The system LED is located in a dummy switch cover in the centre console.

D001987

If the LED is off (A), the vehicle may be started.
If the LED flashes slowly (B), the alarm system is active.
If the LED flashes quickly (C), a self-test is carried out or an error message is given with a flashing code.

NOTE: After the alarm is switched on the LED flashes quickly (C) for about 50 seconds. After that period the LED flashes slowly (B).



D000483-2

If the system raised an alarm, the cause can be determined via the system LED by reading the flashing code (C).
This indication is displayed for 30 seconds after the system has been deactivated with button (2) of the ignition key.

Flashing code	Circuit
3	Driver's door detection
4	Cabin approximation switch detection (cabin lock)
5	Power supply after ignition
6	Superstructure and trailer cargo space detection
8	Superstructure and trailer cargo space detection
9	Interrupted wire
10	Co-driver's door detection
11	Radar sensor cabin interior detection

2.7 LOSS OF HAND-HELD TRANSMITTER

If you lose a hand-held transmitter, replace it as soon as possible.
When replacing it, the lost transmitter can be rendered unusable by erasing the code from the central door locking memory.
Without hand-held transmitters, the alarm system can only be switched off by switching on the ignition.

2.8 SYSTEM DOES NOT RESPOND TO HAND-HELD TRANSMITTER

If the system does not respond to the hand-held transmitter, the following tips may provide a solution:

1. Check whether the battery of the hand-held transmitter still works. This is indicated by whether or not the LED on the hand-held transmitter lights up.
2. A strong radio transmitter in the area may affect the range of the hand-held transmitter. Operate the hand-held transmitter as close as possible to the electronic unit. It is located at the front of the vehicle, on the driver's side.
3. If the system does not respond to the transmitter, switch off the alarm system by opening the vehicle with the key and switching on the ignition. The alarm system cannot be activated with the ignition key.

2.9 BATTERY FOR THE HAND-HELD TRANSMITTER

Battery type: 3 V Lithium battery CR 2032. Depending on the use, the expected lifetime of the battery is at least three years.

Changing the battery

To remove the battery cover, first lift it on the side of the lock button.

NOTE: As the other side of the battery cover has a little locking pin, lifting it from that side destroys the cover.

Replace the battery (plus side up) and fit the battery cover.

NOTE: First slide in the little locking pin and then close the rest of the battery cover.

2.10 MAINTENANCE

Have the alarm system checked at least once per year by a DAF Service dealer. This guarantees optimum protection.

2.11 DISCONNECTING THE VEHICLE BATTERIES

If the vehicle batteries must be disconnected, switch off the alarm system first to prevent the signal horn from sounding.
Then switch off the ignition, wait 80 seconds and disconnect the vehicle batteries.

2.12 INSURANCE COMPANY

Depending on the configuration the alarm system complies with the following insurance categories:

SCM: B2 or B3

Ask your insurance company whether this has any consequences for the insurance.

Make sure that the system is always activated when leaving the vehicle.

Instruments and controls 3

3.1 CABIN

3.1.1 Cabin

The LF series has three cabin versions on each of the three vehicle classes:

Day Cab

D001988

Extended Day Cab

D001989-2

Sleeper Cab

D001989-2

NOTE: The difference in the cabins of the vehicle classes is in the height of the cabin underbody.
As a result of this, class 1 vehicles have one step and class 2 and 3 have two steps for entering and leaving the cabin.

3.1.2 Entering and leaving the cabin

To get in and out of the cabin, use the grab handles on the left- and right-hand door pillars and not the steering wheel. Also use all the steps and always face the cabin when getting in or out.

D001990

NOTE: The vehicle is equipped with a park brake warning system. If the driver's door is opened while the engine has been switched off and the park brake has not been applied, an acoustic signal is given and a warning symbol is shown on the instrument panel.

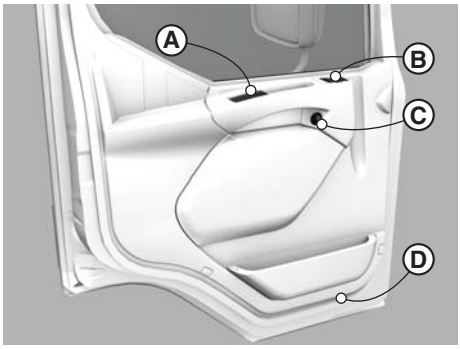
NOTE: When one of the doors is opened without the exterior lights on, some of the switches are illuminated for 20 seconds.

3.1.3 Doors

WARNING!

– ***If the doors are not properly closed, do not drive the vehicle. Driving the vehicle with the doors not properly closed can cause the door to open unintentionally and lead to serious injury.***

A Door handle
B Control panel for electrically operated windows, mirror and windscreen heater
C Electrical mirror adjustment
D Stepwell lighting



D002158

Standard version

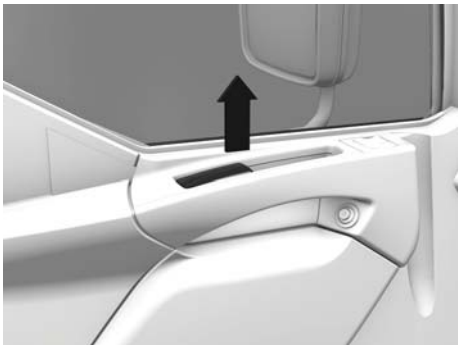
Locking and unlocking from the outside

Both doors can be locked and unlocked from the outside using the key.
Only the driver's door is unlocked with the key.
Both doors are locked when one of the doors is locked with the key.

Avoid locking yourself out!

Opening the door from the inside

Pull handle to open the door from the inside. If the door is locked, it is automatically unlocked.

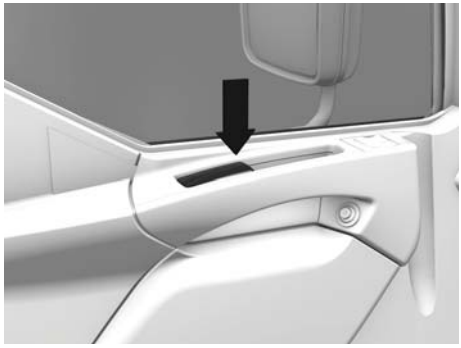


D001991

The co-driver side can be unlocked and locked from the driver's position using the two-position switch on the centre console.

Locking the door from the inside

Push handle down to lock the door from the inside.



D001992

Central door locking

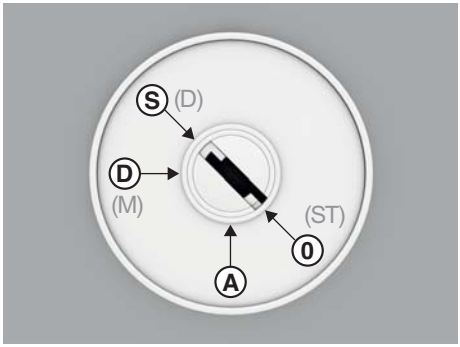
To open the doors of a vehicle with central door locking, use the same procedure as described for the standard version.

Hand-held transmitter

See section 'Using the hand-held transmitter' in the chapter 'Alarm system' for locking and unlocking the doors with the buttons of the hand-held transmitter.

3.1.4 Steering lock/ignition/starter switch

WARNING!
– ***Never turn the ignition key to the rest position 0 (ST) or remove it while the vehicle is in motion.***
If the steering wheel lock is engaged, the vehicle cannot be steered while the vehicle is in motion. This can lead to serious injury and damage to the vehicle.



D001669

CAUTION:
– ***Always remove the key straight from the ignition lock. Removing the ignition key at an angle from the lock can result in snapping the key or damaging the ignition lock.***

Position 0 (ST): rest position
When the key is removed in this position the steering wheel can be locked.
If the steering wheel is turned slightly, the steering wheel locks.

Position A: accessories position
Steering wheel unlocked. The key cannot be removed. Accessories, such as a radio, can be switched on.

Position D (M): ignition switched on
All power consumers can be switched on.

Position S (D): starting
When the key is released, it automatically returns to position D (M).
If the engine is running, the starter lock is activated.

NOTE: When starting, the power supply to the accessories (position A) is temporarily shut off.

3.1.5 Steering column adjustments

The position of the steering column is adjustable.

WARNING! Adjusting the adjustable steering column during driving can cause unintentional steering movements and can cause injuries.
– Only adjust the steering column while the vehicle is stationary.

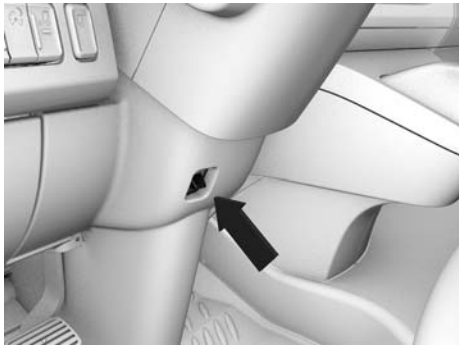
Mechanical steering column adjustments

To adjust, pull the handle towards you and simultaneously move the steering column to the desired position. The steering column is locked by releasing the handle.

D001993

Pneumatic steering column adjustments

A pneumatically adjustable steering column is available as an option.



D001994

Adjusting

Push up the two-position switch. The steering column is unlocked temporarily. The height and angle of the steering wheel can now be adjusted.

Locking

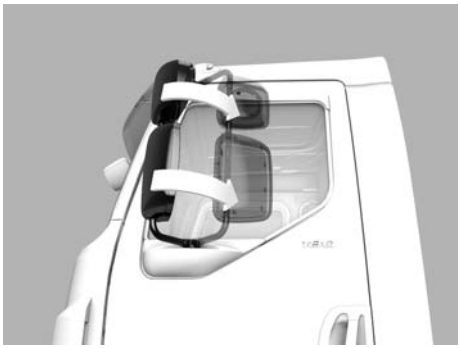
Push down the two-position switch. The steering column is locked.

NOTE: A light hissing noise is audible while the steering column is being adjusted. This noise is caused by the two-position switch. If the steering column has not been locked, this switch locks it automatically after 20 - 30 seconds.

3.1.6 Mirrors

The complete mirror bracket can be folded against the cabin, and returns to its original position by folding the bracket back again.
In addition to the main mirror and the wide view mirror, there may also be a kerb mirror and a front view mirror, providing the driver with a better view.

NOTE: Clean the mirrors with a wet sponge or damp cloth only.



D001995

Manually adjustable mirrors

Manually adjustable mirrors can be adjusted by hand; push the mirror in the required direction.

D001996

Electrically adjustable mirrors

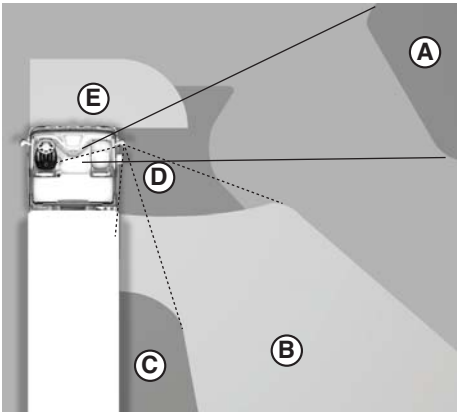
For information about electrical mirror adjustment, see section 'Electrical mirror adjustment'.

3.1.7 Setting the mirrors

First set the seat in the correct driving position. Then adjust the mirrors to the correct positions.

Co-driver side mirrors with field of vision projected on the ground

A Side window
B Wide view mirror
C Main mirror
D Kerb mirror
E Front view mirror

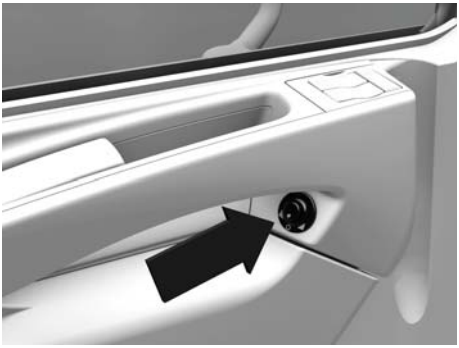


D001712

3.1.8 Electrical mirror adjustment

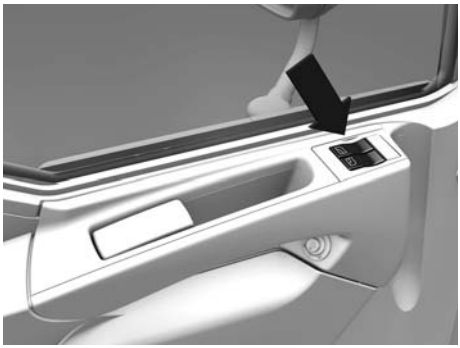
The electric mirrors can be adjusted with the switch in the driver's door.

1. Select the right or left mirror by turning the button either to the right or left position.
2. Move the switch forwards, backwards, left or right to adjust the mirror.



D001997

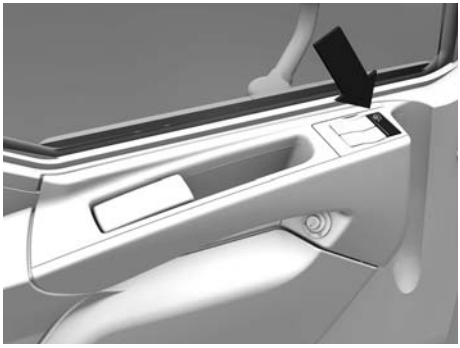
3.1.9 Electrically operated windows



D001998

The switches only work when the ignition is switched on.
The driver's and co-driver's windows can be opened and closed with the switches in the driver's door. The switch in the co-driver's door can only open and close the co-driver's window.

3.1.10 Heated mirrors and windscreen



D001999

Mirror heating

The mirror heating switch is used to switch the heating of the external mirrors on and off, except for the kerb mirror and front view mirror.
When the ignition is switched off, the exterior mirror heating is switched off as well.

Windscreen heating

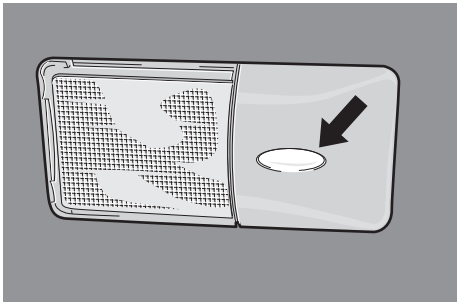
Windscreen heating is optional.
The windscreen heating is switched on in conjunction with the mirror heating. When the mirror heating is switched on, the windscreen heating is on for 12 minutes.

3.1.11 Interior lighting

The interior lighting operates independently of the position of the ignition key.

The interior light comes on when the door is opened. When the doors are open for more than 15 minutes, the interior lamps will be extinguished.

The lamp stays lit by operating the switch on the lamp.



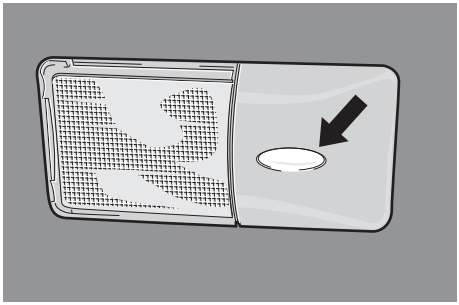
D001197

3.1.12 Bunks

Depending on the cab type, there is a bunk behind the seats. This bunk can fold down or can be stored with the belts provided on the sides of the cab. There are three lockable storage compartments under the bunk.

3.1.13 Bunk light

If the vehicle is equipped with a sleeper cab, there is a bunk lamp over each seat, each with its own on/off switch.

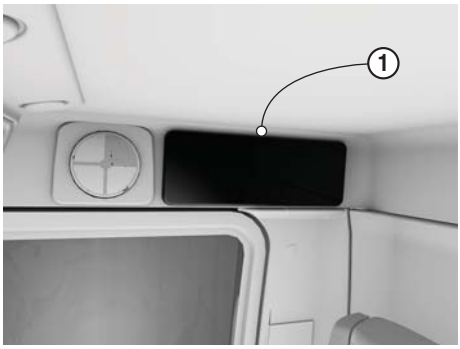


D001197

3.1.14 Sun visors

As a protection against sun glare, the sun visors can be folded down.

Depending on the vesion a side visor (1) can be fitted on the driver side. The side visor can be folded down and slided in front of the side window.



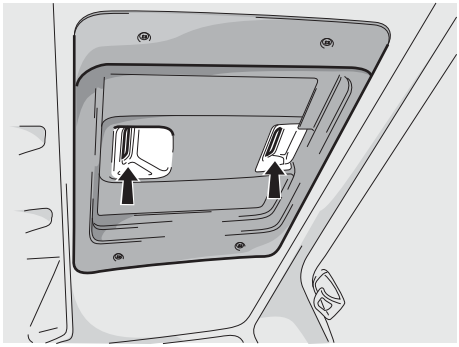
D005059

3.1.15 Roof console - pigeonholes

In the roof console are two pigeonholes, which are protected by a half-high safety net. Do not place any heavy objects in these pigeonholes and make sure that any objects are constrained and unable to move freely.

D002001

3.1.16 Roof hatch



D0 00 582

Manual control

The manually operated roof hatch can be opened on both sides by countering the resistance met.

Electrical operation (optional)

The electrically operated roof hatch is opened and closed using a switch on the roof console.

3.1.17 Stepwell lighting

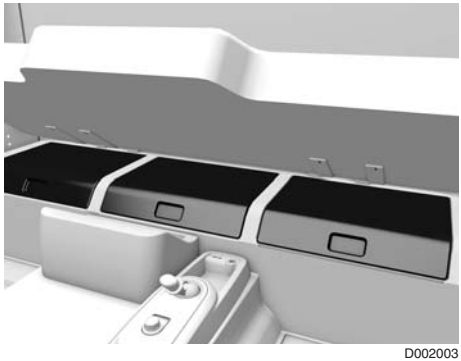
In both doors, a lamp is fitted at the bottom to light the stepwell. This will light up as soon as the door is opened.

3.1.18 Windscreen wiper blades

Switch off the windscreen wipers before switching off the ignition.
Clean the windscreen wiper blades regularly with water and dry them with a soft cloth. Before operating the windscreen wiper blades in winter conditions, check that the blades are not frozen to the windscreen to prevent damage. To prevent the blades freezing to the windscreen, lift them from the windscreen. F.e. by placing something between the wiper and the windscreen.

3.1.19 Tool boxes or storage compartments

Under the bunk or behind and between the seats (depending on the cabin type), there are storage compartments that can be closed with a covering flap.



D002003

3.2 SEATS AND SAFETY BELTS

3.2.1 Seats

WARNING!
- ***Never drive with the seat reclined too far back.***
- ***Always sit in an upright position and use the seat backrest.***
- ***Adjust the armrests so that the freedom of movement to operate the vehicle is not obstructed.***

Any incorrect positioning or adjustment of the seat and armrest can increase the risk of serious or fatal injury during driving or braking manoeuvres, or in the event of an accident or collision.

WARNING! Adjusting the driver seat during driving can cause unintentional steering movements and can cause injuries.
- ***Only adjust the driver seat while the vehicle is stationary.***
- ***Only adjust the seat when the seat is occupied and there is nothing or no one in the adjustable range of the seat.***

Important points
- Read this section thoroughly and acquaint yourself with the seat controls.
- The vehicle air pressure must be a minimum of 8.6 bar.
- Never operate several controls at the same time.
- The seat fixings and component parts must be checked for wear from time to time by qualified personnel. Consult a DAF Service dealer.
- The seat may only be repaired and fitted by qualified personnel. Consult a DAF Service dealer.

Seat adjustment tips

To achieve a proper seating position, bear in mind the following tips. Make sure that:
- Pedals can be operated in the correct way.
- Upper legs are horizontal.
- The angle between upper legs and lower legs is between 90 and 120 degrees.
- Upper legs, pelvis and lower back are well supported.
- A fist can be placed between the seat cushion and the hollow at the back of the knee.
- The backrest is slightly tilted backwards.
- Arms and shoulders are relaxed.
- The back does not leave the backrest during shifting and steering.

Seat controls and adjustments

Depending on the comfort level different seat controls and adjustments are available. The seat comfort levels are:
- Standard (for both driver and co-driver seats).
- Comfort (only for the driver seat).

D002070

1	seat length adjustment.	7	Lower lumbar support adjustment. (only on comfort seat)
2	Seat cushion length adjustment.	8	Lateral support adjustment. (only on comfort seat)
3	Armrest. (optional)	9	Vertical seat damper.
4	Backrest angle adjustment.	10	Seat height adjustment.
5	Seat cushion heating. (only on driver seat versions)	11	seat tilt adjustment
6	Upper lumbar support adjustment. (only on comfort seat)	12	Quick down.

1. Seat length adjustment

D002077

Pull the lever to adjust the complete seat length. Once the desired length has been achieved, release the lever.

NOTE: Make sure that the seat can move up and down freely after the seat length is adjusted.

2. Seat cushion length adjustment

D002078

Pull the lever to adjust the seat cushion length. Once the desired length has been achieved, release the lever.

3. Armrest

The armrest is fitted on the co-driver seat and as an option on the driver seat.

If necessary, the armrest can be folded away.

CAUTION: Do not use the armrest as a step to gain access to the bunk.

D002080

Adjust the armrest angle by turning the adjusting wheel.

D002082

4. Backrest angle adjustment

D002072

Pull up the locking lever to adjust the backrest angle. Once the desired angle has been achieved, release the lever.

NOTE: Make sure that the seat can move up and down freely after the backrest angle is adjusted.

5. Seat cushion heating

Only on the driver seat. Standard fitting on the Comfort version and optional for the Standard version.

WARNING!

– ***Persons with reduced pain or temperature perception cannot use the seat heater.***

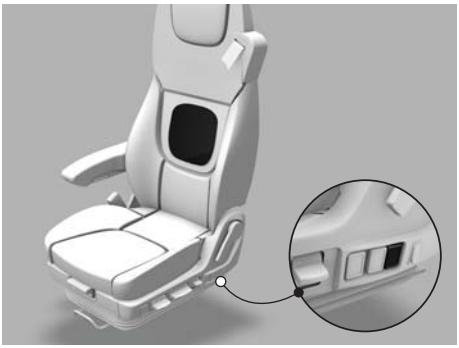
Persons suffering from reduced pain or temperature perception for any reason whatsoever can sustain burns to the back, buttocks and legs when using the seat heater.

D002084

By operating the seat heater switch, the heating pads in the backrest and seat cushion can be heated (two heating levels).
0: Heating off
1: Heating on

6. Upper lumbar support adjustment

Only on Comfort version

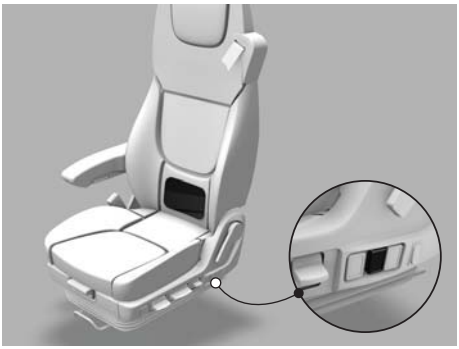


D002086

Use this switch to adjust the upper section of the lumbar support of the backrest.

7. Lower lumbar support adjustment

Only on Comfort version



D002085

Use this switch to adjust the lower section of the lumbar support of the backrest.

8. Lateral support adjustment

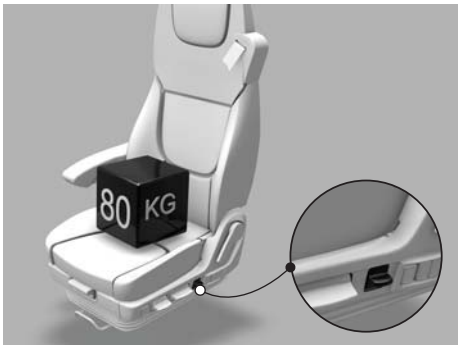
Only on Comfort version

D002151

Use this switch to adjust the lateral support of the backrest.

NOTE: Adjust the lumbar supports before adjusting the lateral support.

9. Vertical seat damper



D002076

Adjust the suspension characteristics of the seat with the vertical seat damper switch.
The suspension characteristics of the seat can be optimised in steps.
Switch in top position: minimum damping ('soft' comfort).
Switch in bottom position: maximum damping ('hard' comfort).

10. Seat height adjustment

D002073

The height is adjustable in steps. Pull or push the height adjustment lever to move the seat one step up or down. The handle must be released before re-adjusting the height another step up or down.

11. Seat tilt adjustment

D002074

Pull the lever to adjust the complete seat angle. Once the desired angle has been achieved, release the lever.

12. Quick down

D002075

Press the button to move the seat down into the lowest position. Press the button again to raise the seat back up to the last saved height.

NOTE: This function is especially for getting in and out of the vehicle easily.

Cleaning the seats

See section 'Cleaning' in the chapter 'Inspections and maintenance'.

3.2.2 Safety belts

The seats are equipped with safety belts. Not wearing a safety belt can cause serious injury or death during a collision.
The driver seat is fitted with a safety belt reminder. This reminder consists of a warning indicator on the instrument panel and a pop-up warning on the master display.

WARNING!

- ***ALWAYS wear safety belts (mandatory in some countries)!***
- ***The safety belts must audibly click shut.***
- ***Never use a clip or other device to reduce the safety belt tension.***
- ***Vehicles equipped with an airbag always have safety belts with a tensioner. To ensure proper operation of the airbag, it is absolutely essential to wear the safety belts.***
- ***Vehicles equipped with VSC (Vehicle Stability Control) may unexpectedly brake hard in certain situations.***

WARNING!
- ***Never have repairs or modifications made to the safety belts.***
- ***Renew the safety belt when the webbing is worn or damaged. Contact a DAF Service dealer.***

Making repairs or modifications to the safety belts affects the correct functioning of the safety belt.

WARNING!
- ***The complete safety belt assembly must be renewed after a collision, even if there is no visible evidence of damage. Contact a DAF Service dealer.***

The correct functioning of the safety belts after being subjected to high load during a collision cannot be guaranteed.

WARNING! Incorrect stowing of the vehicle tool set or any other object behind the seats can cause the safety belt to block.

Wearing the safety belt

- Do not twist the safety belt when putting it on.
- Make sure that the tongue snaps firmly into place when pushed into the buckle.
- Adjust the safety belt height. The safety belt must fit snugly across the body
- When unfastening the safety belt, allow the belt to retract so that the belt forms a straight line between the anchorage points.

Checking the safety belts

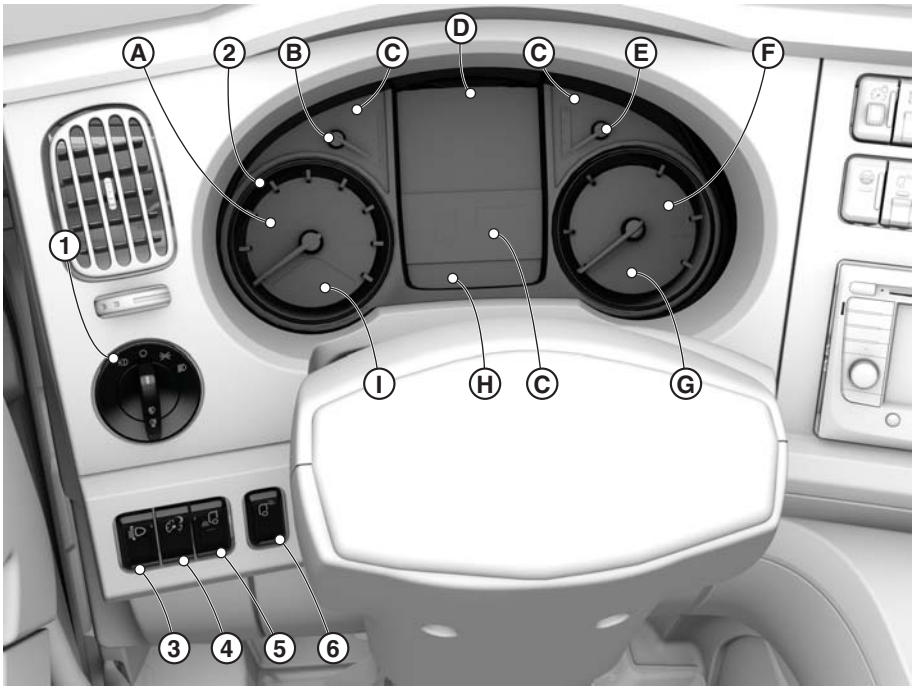
- Give a short pull on the safety belt to test the locking mechanism. During this test, the belt must lock and it must not be possible to pull the safety belt out of the retracting unit after locking.
  Repeat this check regularly, for example when putting on the safety belt, to check the mechanism.
  The locking mechanism must be replaced and/or repaired immediately if it is defective. Contact a DAF Service dealer.
- Inspect the belts regularly for wear.

Cleaning the safety belts

See 'Cleaning' in the chapter 'Inspections and maintenance'.

3.3 INSTRUMENTS AND CONTROLS

3.3.1 Instrument panel



D002008

1	Light switch	2G	Tachometer display
2	Instrument panel	2H	Clock, outside temperature and trip odometer display
2A	Speedometer		
2B	Fuel level and AdBlue level gauges	2I	Speedometer display
		3	Headlight height adjustment
2C	Warning indicators	4	Dimmed instrument lighting
2D	Master display	5	Static cornering lights
2E	Coolant temperature gauge	6	Work light
2F	Rev counter		

1. Light switch

The switch is a rotary switch with a spring-loaded position and three static positions:

Spring-loaded position:
Switch off daytime running lights.

When the engine is running and the lighting is not switched on, the daytime running lights come on automatically. Apply the park brake and turn the light switch to this position. Hold it in this position for a short while to switch off the daytime running lights.
The yellow warning on the instrument panel indicates the function is switched off.

Position 0: Lighting switched off.

Position 1: Marker lights on.

Position 2: Headlights and marker lights on.

The light switch must be in position 1 or 2.
Front fog lights
Pull out the light switch one step to switch on the front fog lights.
When the front fog lights are on, the warning indicator on the instrument panel is visible.

Rear fog lights
Pull out the light switch one step further to switch on the rear fog lights together with the front fog lights.
When the rear fog lights are on, both warning indicators on the instrument panel are visible.
If no front fog lights are fitted, the switch can only be pulled to the second step when the light switch is in position 2. Only the warning indicator for the rear fog lights is on.

2. Instrument panel

A. Speedometer
Depending on the vehicle model, the speedometer has a single scale division in km/h or a double scale division in km/h and mph.

B. Fuel level gauge
The fuel level gauge only operates with the ignition switched on.
Note the delay on the gauge when the ignition is switched on.

C. Warning indicators
Indicators for functions that are switched on or off.

D. Master display
See the chapter 'Master display'.

E. Coolant temperature gauge
Do not operate the engine under full load when the temperature is in the blue field.
The engine is at operating temperature when the gauge pointer is vertical or slightly higher.
– If the coolant temperature suddenly rises and/or the pointer is in the red field, check the following points:
– The coolant level (caution – danger of scalding). See section 'Topping up coolant' in the chapter 'Inspections and maintenance'.
– The poly-V-belt and water hoses.
– The fan clutch.

F. Revolutions counter

– Green and semi-green area: economical.
– Blue area: only permitted when driving downhill and for optimal use of the engine brake.
– Red area: not permitted.

G. Tachometer display
Selected gearbox functions are visible in the tachometer display.
AS Tronic automatic gearbox:
– Current gear indicator.
– Manoeuvre mode setting.
– Manual or automatic mode.
– Off-road mode active.
Manual gearbox:
– High or low gearing selected (splitter).

H. Clock, outside temperature and trip odometer display
The display is activated when the ignition is switched on.
The clock is shown in the top left-hand section of the display. The standard daylight saving time can be altered on the tachograph. See the tachograph operating manual.
The outside temperature is displayed in the bottom left-hand section.
The right-hand side shows the trip odometer. The trip odometer can be reset using the master display, see section 'Menu overview' in the chapter 'Master display'.

I. Speedometer display
When the steering wheel switches are used to activate cruise control or to alter the settings, this is visible on the master display. After three seconds the settings disappear on the master display, but they remain visible in the speedometer display.
What is shown are whether the cruise control is activated, the distance setting to the vehicle ahead and whether the downhill speed limiter is active.

3. Headlight height adjustment (only available in combination with halogen headlights)
The height setting of the headlights can be adjusted with a thumb wheel. By turning this thumb wheel, the headlights can be directed upwards or downwards.
The headlights only react to changes of the thumb wheel position with the light switch in position 2 (dipped beam is on).
The positions on the thumb wheel are as follows:
– The position marked '0' is the normal position.
– The headlights are directed upwards in three steps by turning the thumb wheel to one of the positions marked 'I', 'II' and 'III'.
– To avoid dazzling oncoming traffic, the headlights can be directed downwards by turning the thumb wheel to the position marked '-/-'.

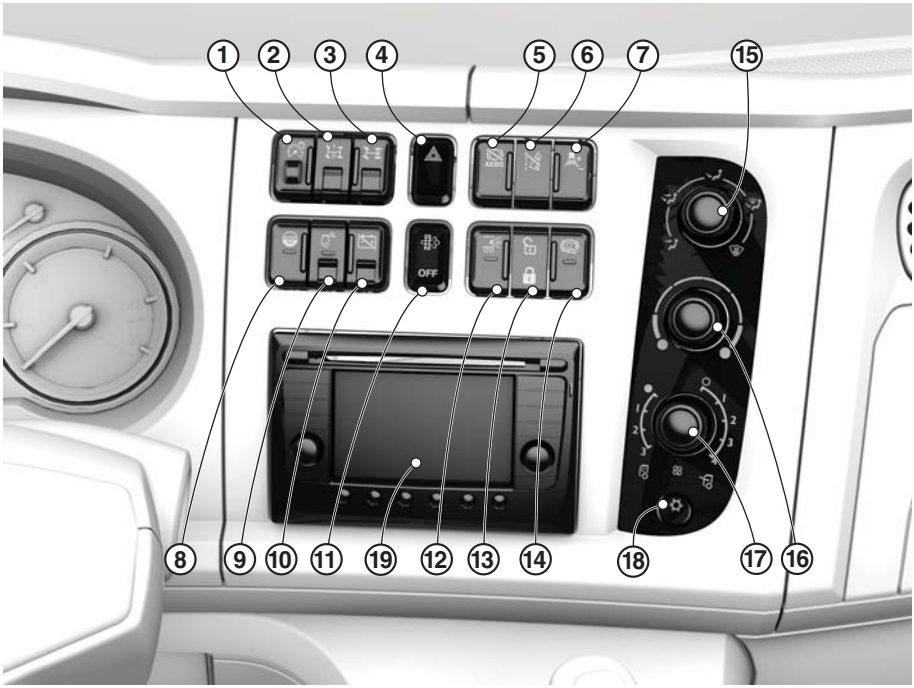
4. Dimmed instrument lighting
Press this switch to dim all instrument lighting to prevent the obstructive reflection of light from the windows at night.

5. Static cornering light
When the vehicle speed is below 40 km/h (19 mph) and the direction indicator is used, the cornering light (in the fog light) on the side of the chosen indicator comes on automatically. Use this switch to turn off this function.

6. Work light or loading space light switch
Use this switch to switch on or off the work light on the cabin cross member or the lighting in the loading space.

NOTE: The marker lights must be on (light switch in position I).
If the vehicle speed exceeds 30 km/h (25 mph), the work light or loading space light switches off automatically.

3.3.2 Control panel



D002009-2

1 Instrument lighting dimmer.
2 PTO-1 switch.
3 Cross-axle differential lock switch.
4 Flasher hazard warning lights switch.
5 Advanced Emergency Braking System (AEBS) on/off switch.
6 Lane Departure Warning System (LDWS) switch.
7 Adaptive Cruise Control (ACC) distance switch.
8 Stop & go switch (version-dependent).
9 Hydraulic platform surround lights switch.
10 ADR/SLP main switch
11 Diesel Particulate Filter (DPF) switch.
12 Reverse buzzer deactivation switch.
13 Switch for unlocking co-driver door.
14 Hill Start Aid switch.
15 Air distribution rotary knob.
16 Temperature control rotary knob.
17 Fan speed control rotary knob.
18 Air conditioning switch.
19 TNR or monitor camera system or basic radio and storage (version-dependent).

1. Instrument lighting dimmer
When the ignition is switched on and the marker lights are on, the instrument lighting and the radio display illumination lights up.
The lighting and the radio display illumination can be dimmed by turning the thumb wheel.
When the dimmed instrument lighting is on, the lighting cannot be dimmed.

2. PTO 1 switch
PTO 1 can be an engine PTO or a gearbox PTO. Use this switch to activate or deactivate PTO 1.

NOTE: This switch has a lock.

PTO (Power Take Off)

NOTE: Conditions for switching the PTO on or off depend on the application of the vehicle and thus the programming of the electronic systems. The conditions for switching the PTO on or off differ from the description below. Consult a DAF Service dealer for the conditions for switching the PTO on or off on the vehicle.

Gearbox PTO

Switching on the PTO

1. Depending on the programming, either the park brake must be in the parking position, or it can also be in the driving position.
   NOTE: If the park brake can be in driving position when the PTO is switched on, it is possible to drive in this situation.
   To switch on the PTO the vehicle must be stationary.
2. Allow the engine to run at idling speed (engine speed below 700 rpm).
3. With a manual gearbox, hold the clutch pedal down for another 2-3 seconds (to engage the PTO).
   With an AS Tronic gearbox, turn the rotary switch to neutral (N).
4. Switch on the PTO with the PTO switch.
   The PTO warning indicator is activated on the instrument panel when the PTO is engaged.

Switching off the PTO

1. The vehicle must be stationary.
2. Run the engine at idling speed.
3. With a manual gearbox, press the clutch pedal.
   With an AS Tronic gearbox, turn the rotary switch to neutral (N).
4. Switch off the PTO with the PTO switch.

With a manual gearbox, hold the clutch pedal down for another 2-3 seconds (to stop the PTO).
The PTO warning indicator is deactivated on the instrument panel when the PTO is disengaged.

3

Driving with engaged PTO
Driving with the PTO switched on is permitted, provided the maximum PTO speed is not exceeded.
Changing gear when the PTO is engaged is not permitted and, in the case of an AS Tronic gearbox, is not possible.

Engine PTO

Switching on the PTO
1. Allow the engine to run at 650 rpm - 1000 rpm.
2. When driving, the vehicle speed must be less than 50 km/h (31 mph).
3. Switch on the PTO with the PTO switch.
   The PTO warning indicator is activated on the instrument panel when the PTO is engaged.

Switching off the PTO
1. Switch off the PTO with the PTO switch.
   The PTO warning indicator is deactivated on the instrument panel when the PTO is disengaged.
   The engine PTO can be switched off when driving or at vehicle standstill.

3. Cross-axle differential lock switch
Use this switch to engage or disengage the cross-axle lock.
See section 'Differential lock' in the chapter 'Driving'.
The differential lock must be activated:
– With the vehicle stationary.
– With the clutch pedal depressed.
– With the gearbox in the Neutral (N) position in the case of vehicles with an automatic/AS Tronic gearbox.

NOTE: This switch has a lock.

4. Flasher hazard warning lights switch
Use this switch to switch on and off the hazard warning lights. The lighting in the switch indicates that the hazard warning lights are switched on.

5. Advanced Emergency Braking System (AEBS) on/off switch.
AEBS is preselected as on by default. Use this switch to disengage and engage AEBS.
See section 'Advanced Emergency Braking (AEBS)' in chapter 'Safety systems'.

6. LDWS switch
Press this switch to disengage and engage the LDWS (Lane Departure Warning System). LDWS is on by default.
See section 'Lane Departure Warning System (LDWS)' in the chapter 'Safety systems'.

7. Adaptive Cruise Control (ACC) distance switch.
This 3-position spring return switch with fixed central position is used to switch ACC off and on and to change the distance between the vehicle and the vehicle driving ahead:
See section 'Adaptive Cruise Control (ACC)' in chapter 'Safety systems'.

– Press the upper part of the switch to decrease the distance to the vehicle ahead.
– Press the lower part of the switch to increase the distance to the vehicle ahead.

8. Stop & go switch.
Operate this switch to engage or disengage the Stop & Go function. When this function is active, the Allison automatic gearbox automatically shifts from 'Drive' to 'Neutral' when the foot brake pedal is applied and vice versa.

9. Hydraulic platform surround lights switch
Use this switch to switch on or off the surround lights on the hydraulic platform.

10. ADR/SLP main switch
Use this switch to operate the electronic main switch. For more information, see section 'Main switch'.

WARNING! Operating the main switch while driving switches off all electrical systems and the engine. This can lead to very dangerous situations and damage to the vehicle electronics.
– ***Never operate the main switch while driving.***
– ***Never operate the main switch while the ignition is on.***

NOTE: This switch has a lock.

11. DPF switch
Switch to start or stop, or inhibit regeneration of the Diesel Particulate Filter (DPF).

Upper side: Initiate regeneration, DPF
See section 'Regenerating DPF' in the chapter 'Driving'.

Lower side: Stop or inhibit regeneration, DPF
See section 'Regenerating DPF' in the chapter 'Driving'.

12. Reverse buzzer deactivation switch
The reverse buzzer can be switched on or off with this switch when reversing. **Always switch on the reverse buzzer under normal driving conditions.**

13. Switch for (un)locking co-driver door
Switch to lock or unlock the co-driver door.

Upper side: unlock co-driver door

Lower side: lock co-driver door

14. Hill Start Aid
Press this switch to engage or disengage the Hill Start Aid. When Hill Start Aid is engaged the indicator light in the switch is on.
See section 'Hill Start Aid' in the chapter 'Driving'.

15, Air distribution rotary knob
See section 'Heating and ventilation system control panel'.

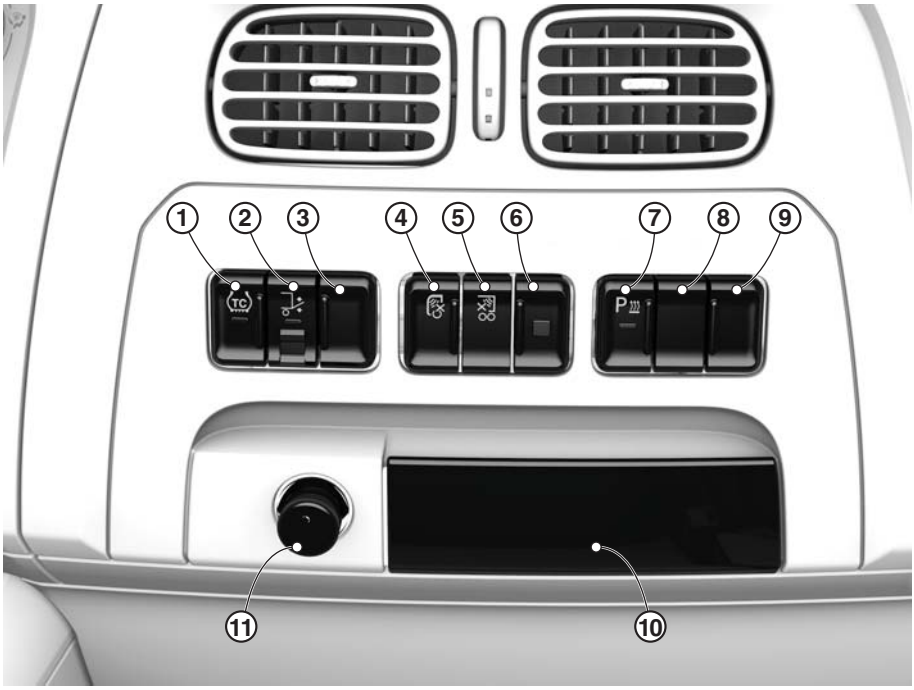
16, Temperature control rotary knob
See section 'Heating and ventilation system control panel'.

17, Fan speed control rotary knob
See section 'Heating and ventilation system control panel'.

18. Air conditioning switch
The air conditioning switch has the following positions:
– Air conditioning switched off; the indicator light (in the switch) is off.
– Air conditioning switched on; the indicator light (in the switch) is on.

19. TNR or basic radio and storage (version-dependent)
See chapter 'Radio'.

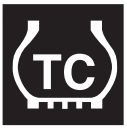
3.3.3 Centre console



D002010

1	ASR traction aid	5	Superstructure or trailer loading space detection off switch
2	Cargo lift	6	System LED
3	Not used	7	Auxiliary heater switch
4	Cabin interior detection off switch	8	Not used

9 Not used
10 Ashtray
11 12V/5A lighter



1. ASR traction control switch
Use this switch to increase the maximum permissible wheel slip. See section 'Anti Slip Regulation' in the chapter 'Driving'.

2. Rigid: Cargo lift
The cargo lift can be opened or closed with this switch.

NOTE: This switch has a lock.

3. Not used.

4. Cabin interior detection off switch
See the chapter 'Alarm system'.

5. Superstructure or trailer loading space detection off switch
See the chapter 'Alarm system'.

6. System LED.
See the chapter 'Alarm system'.

7. Auxiliary heater switch
Use this switch to switch the auxiliary heater on and off. An LED indicates that the auxiliary heater is switched on.

8. Not used.

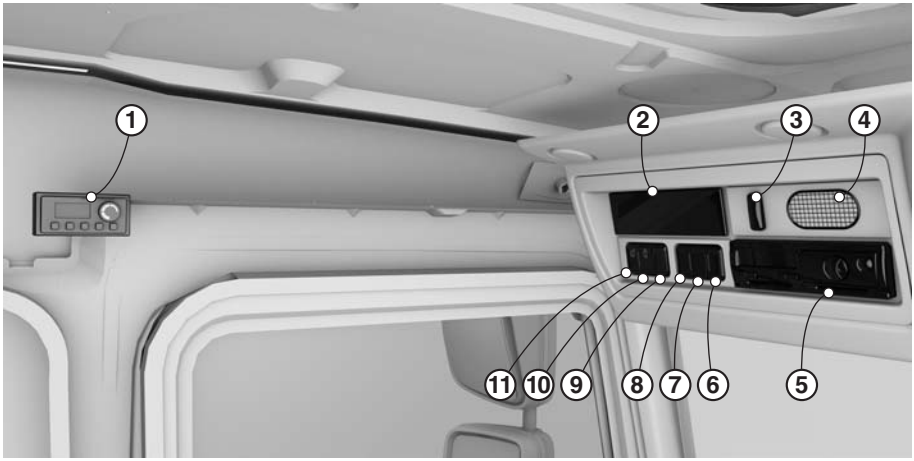
9. Not used.

10. Ashtray.

11. 12V/5A lighter
Depress the lighter. It springs back automatically when ready for use. If the lighter plug is used to connect accessories, see section 'Accessory plug connectors and air connection'.

3.3.4 Roof console

Sleeper Cab and Extended Day Cab



D002011

1	Auxiliary heater timer unit	7	Not used
2	Customer-specific DIN slot	8	Not used
3	Telephone microphone	9	Not used
4	Telephone speaker	10	Rotating light switch
5	Digital tachograph (DTCO)	11	Roof hatch switch
6	Not used		

1. Auxiliary heater timer unit
For more information, see chapter 'Auxiliary heater'.

2. Customer-specific DIN slot

3. Telephone microphone

4. Telephone speaker

5. Digital tachograph (DTCO)
For more information on the DTCO, see the separate user manual.

6. Not used

7. Not used

8. Not used

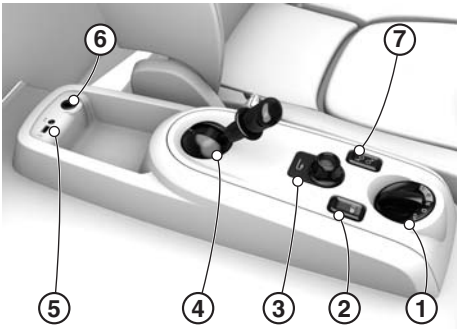
9. Not used

10. Rotating light switch
Use this switch to switch the rotating light on and off at all times.

11. Roof hatch switch
Use this switch to open and close the roof hatch electrically.
See section 'Roof hatch'.

3.3.5 Park brake console

1 AS Tronic rotary knob.
2 AS Tronic manual or automatic switch
3 Menu Control Switch.
4 Park brake handle.
5 USB/AUX plug 'radio'
6 24V/15A plug connection
7 AS Tronic +/- switch



D002013

1. AS Tronic rotary knob
See chapter 'AS Tronic'.

2. AS Tronic manual or automatic switch
See chapter 'AS Tronic'.

3. Menu Control Switch
Turn the Menu Control Switch to switch screens in the main menu. When the switch is pressed, the function or information selected is displayed, and subsequently any sub-menus are displayed.
See chapter 'Master display'.

4. Park brake handle
See the section 'Brakes' in the chapter 'Driving'.

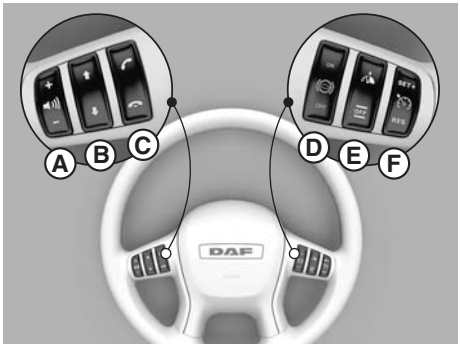
5. USB/AUX connection DAF radio
Consult the radio user manual.

6. 24V/15A plug connection (accessory connection)

7. AS Tronic +/- switch
See chapter 'AS Tronic'.

3.3.6 Steering Wheel Switches

A Volume control
B Scroll function
C Pick up call, end call or reject call
D Engine brake
E Variable speed limiter
F Cruise control or Engine Speed Control



D002015

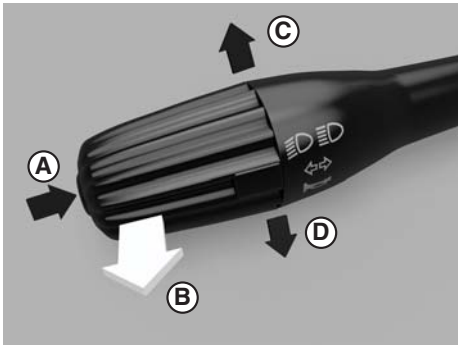
NOTE: If no telephone interface or radio were ordered, switches A, B and C are not installed.
If a radio was ordered, switches A and B are installed and if a telephone interface was ordered, A, B and C are installed.

For more information about telephone operation, see section 'Operating a telephone using the steering wheel switches'.

For more information about 'Engine brake', 'variable speed limiter', 'cruise control' and 'Engine Speed Control', see chapter 'Driving'.

3.3.7 Left-hand steering column switch

A Horn
B Main beam
C Direction indicator, right
D Direction indicator, left



D002016

A. Horn

The horn is operated with button A.

B. Main beam
Position B: The main beam is activated when the lights are on. The main beam indicator on the instrument panel also lights up. To switch off the main beam, turn the switch back through the 'click' position towards the steering wheel. If the lights are off, or if the switch has not been pushed through the 'click' position, it can be used to give signals.

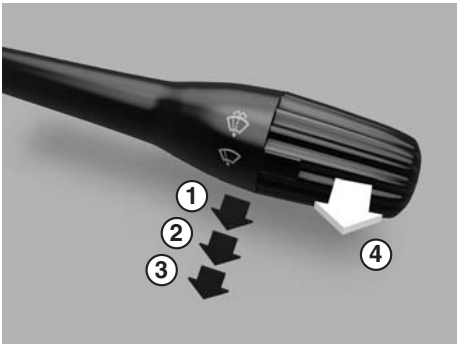
C. Direction indicator, right
Position C: Right turn signal: on the instrument panel, the right direction indicator flashes and there is also an audible signal. To briefly operate the direction indicators (changing lanes etc.), the switch can be pushed slightly against the spring pressure. It springs back when released.

D. Direction indicator, left
Position D: Left turn signal: on the instrument panel, the left direction indicator flashes and there is also an audible signal. To briefly operate the direction indicators (changing lanes etc.), the switch can be pushed slightly against the spring pressure. It springs back when released.

3.3.8 Right-hand steering column switch

The right-hand steering column switch has the following functions:

Off position
1 Position 1: Intermittent wipe.
2 Position 2: Wipe speed (low).
3 Position 3: Wipe speed (high).
4 Position 4: Wipe and wash.



D002017

Windscreen wipers
The windscreen wipers only work when the ignition is switched on.

In winter conditions, to prevent damage to windscreen wipers, always switch off the windscreen wipers before putting the ignition key in the rest position.

Interval for intermittent wipe
The standard interval is 5 seconds.
The interval can be adjusted between one and 20 seconds using the windscreen wiper switch.

Increasing/decreasing the interval:
– Switch on intermittent wipe (position 1).
– **When the windscreen wipers are inactive (wipers fully down),** move the windscreen wiper switch to the off position for a period of one to 20 seconds.
– After 10 seconds (for example), switch intermittent wipe on again (position 1).

The new interval is now 10 seconds (the time that the windscreen wiper switch was in the off position).

If the ignition is switched off, or if intermittent wipe is not switched on for 5 minutes, the interval reverts to the standard interval of 5 seconds.

Windscreen washers
The windscreen washers are activated by moving the windscreen wiper switch to position 4. The windscreen washers stop when the switch is released. The windscreen washer is engaged together with the windscreen wipers.

3.3.9 Installing and removing Bluetooth enabled telephones

Connecting with the vehicle telephone interface system

NOTE: It is not possible to enter the telephone setup menu using the Menu Control Switch while driving. Telephone operation is only possible while driving using the steering wheel switches once telephones have been paired and are connected.

Switch on the ignition. The Bluetooth telephone must now be paired with the telephone interface system.
Use the Menu Control Switch to select the 'Phone' icon in the master display.
Select the 'Bluetooth phone' icon, and then select the 'Bluetooth status' icon to enable the Bluetooth connection in the vehicle.

Pairing Bluetooth enabled phones

It is possible to pair a maximum of ten telephones via Bluetooth.

– Enable the telephone Bluetooth connection.
– Use the Menu Control Switch to select the 'Phone' icon in the master display.
– Select the 'Bluetooth phone' icon.
– Select the 'Search for phones' icon.
  The telephone interface system on the truck searches for available Bluetooth telephones.
– Select the telephone from the list of found telephones.
– Enter the PIN code when prompted.

NOTE: Use the 'Reverse search' option when the truck fails to locate a Bluetooth-enabled telephone. The vehicle telephone interface system broadcasts the truck chassis number that is detected by a Bluetooth-enabled telephone. Select the truck telephone system from the Bluetooth-enabled telephone and enter the PIN code when prompted.

When the telephone is paired, the vehicle telephone interface system reads the telephone memory. The newly paired telephone may request permission to read the telephone memory. This may take some time, depending on the type of telephone.

The telephone is now set to be used via the vehicle telephone interface system.

NOTE: A maximum of ten Bluetooth telephones can be paired with the telephone interface system. Only two telephones can be connected at the same time.

Depending on the vehicle type, the mobile telephone can be placed into a telephone cradle. The cradle model depends on the type of mobile telephone.

There is a mounting place for the cradle behind the cover in the dashboard. See section 'Control panel'.
Depending on the type of telephone, a cradle may be available from a DAF dealer.

NOTE: No mounting plate or cradles are available for the LF series.

Removing a Bluetooth paired telephone from the vehicle telephone interface system.

If no longer required, paired Bluetooth telephones can be removed from the vehicle telephone interface system.

Use the Menu Control Switch to select the 'Phone' icon in the master display. Select the 'Bluetooth phone' icon, and then select the 'Remove phones' icon. Select the telephone to be removed from the list.

3.3.10 Activating the truck phone

Placing the SIM card in the telephone interface unit

Remove the cover of the DIN-slot.
Install the SIM card in the slot behind the black cover.

D002018

NOTE: The correct way to insert the SIM card is shown on the sticker placed on the telephone interface unit.

Close the black cover and replace the cover of the DIN-slot.

Activating the SIM card

– Use the Menu Control Switch to select the 'Phone' icon in the master display.
– Select the 'truck phone' icon.
– Select the 'Activation' icon.
– Set the truck phone to 'On'.
– Use the Steering Wheel Switches to enter the PIN code when prompted.

The truck phone is now set to be used. An icon in the lower part of the master display shows the connection status of the truck phone.

NOTE: The truck phone is operated using the Steering Wheel Switches. See section 'Operating the telephone using the steering wheel switches'.

3.3.11 Operating the telephone using the steering wheel switches

NOTE: This chapter explains the functionality of the telephone interface. The pictures shown in this chapter are provided as examples.

Incoming calls

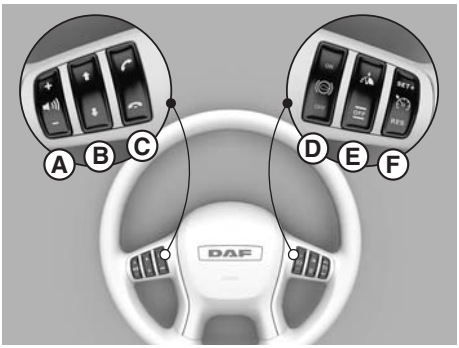
When the telephone receives an incoming call, the following information is shown in the master display:
– The telephone provider.
– The icon shows if it is an incoming, outgoing, missed, ongoing or ended call.
– The name of the person calling or being called is shown if it has been saved on the telephone memory in the telephone.
– When the caller has not been programmed but the number is recognised, the number is visible.
– When the number recognition is deactivated by the person calling, a dashed line is visible.

D001587

– After the call is accepted, the text 'Incoming call' is replaced by the duration of the call.
– Which of the connected phones is active.

Answering calls

Press the 'pick-up call' key (top of switch C) to answer the call, and press the 'end call' key (bottom of switch C) to end or reject the call.



D002015

Outgoing calls

Selecting a telephone

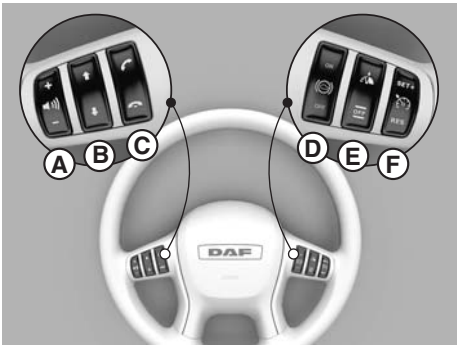
NOTE: This section is only valid when multiple telephones are connected.

– Press the 'pick-up call' key (C) to see the connected telephones.
– Press the 'scroll' key (B) to select a telephone.
– Then press the 'pick-up call' key (C) again to use the selected telephone.

Telephone numbers, previously dialled numbers or missed calls can be accessed from the selected telephone.

Selecting a telephone number from the telephone book

– Press the 'pick-up call' key (C) to access the selected telephone.
– Press the 'pick-up call' key (C) to open the telephone book of the selected telephone.
– Press the 'scroll' key (B) to select the telephone number or person from the list.
– Press the 'pick-up call' key (C) to make the call.
– Press the 'end call' key (C) to end or abort the call.



D002015

Selecting a previously dialled telephone number or missed call

NOTE: It is only possible to select one of the last ten numbers dialled or to view missed and received calls.

– Press the 'pick-up call' key (C) to access the selected telephone.
– Press the 'scroll' key (B) to access the missed call, dialled numbers or received calls.
– Press the 'pick-up call' key (C) to access the selected option.
– Press the 'scroll' key (B) to access the telephone number or person from the list.
– Press the 'pick-up call' key (C) to make the call.
– Press the 'end call' key (C) to end or abort the call.

If the 'end call' key is pressed with a master display screen active, the master display goes back one screen at a time.
If no key is pressed for 60 seconds, the information disappears from the master display.

Dialling a telephone number

NOTE: Only the truck phone has dial number functionality on the master display. It is only possible to dial a number using the SWS when the vehicle is at a standstill.

– Select the truck phone. See section 'Selecting a telephone'.
– Press the 'scroll' key (B) to access the 'dial number' option.
The pop-up screen for entering a telephone number appears.
– Use the 'scroll' key (B) to select a digit, use the 'x' for a correction.
– Select the receiver symbol to make the call.
– Press the 'end call' key (C) to end or abort the call.

Volume control

While making a telephone call, the steering wheel switch (A) is used for volume control. With an outgoing call the volume control is active, even when there is no connection yet. Changing the volume level of the telephone interface system does not affect the volume level setting of the telephone itself.

NOTE: The ringtone volume is set in the 'telephone' menu of the master display using the Menu Control Switch (MCS).

D002015

Disconnecting a Bluetooth telephone when leaving the cabin

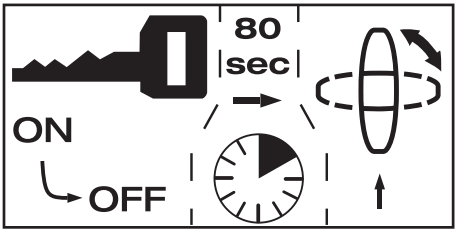
The telephone can be disconnected as follows:
– Press the 'end call' key to open the connections screen.
– Select the telephone to be disconnected.
– Press the 'pick-up call' key. The telephone is now disconnected.

The telephone can be reconnected as follows:
– Press the 'end call' key to open the connections screen.
– Select the telephone to be reconnected.
– Press the 'pick-up call' key. The telephone is now connected.

NOTE: Disconnecting and reconnecting telephones can also be done in the 'telephone' menu of the master display using the Menu Control Switch (MCS).

3.3.12 Main switch

The main switch is either mechanically or electronically operated, depending on the vehicle version.
The switch can be used to **interrupt** the power supply from the **batteries** to the **vehicle** (except for the tachograph).



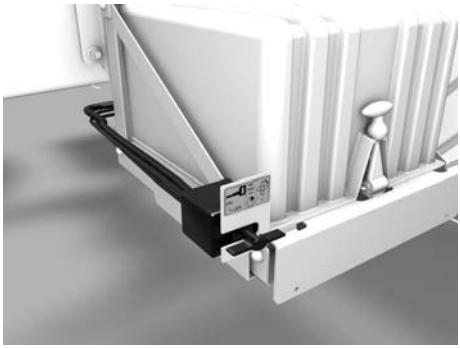
D002103

NOTE:
– ***First switch off the ignition and wait 80 seconds before switching off the main switch.*** *The afterrun phase EAS (Emission Aftertreatment System) must have ended before operating the main switch.*
Never use the main switch as ignition switch.
– *Switch off the engine before operating the main switch.*
– *Switch off the auxiliary heater first. The afterrun phase of the auxiliary heater must have ended before operating the main switch.*
– *Use the main switch when the vehicle is parked and left unattended.*

WARNING! Operating the main switch while driving switches off all electrical systems and the engine. This can lead to very dangerous situations and damage to the electronics of the vehicle.
– ***Never operate the main switch while driving.***
– ***Never operate the main switch when the ignition is on.***

Mechanical main switch

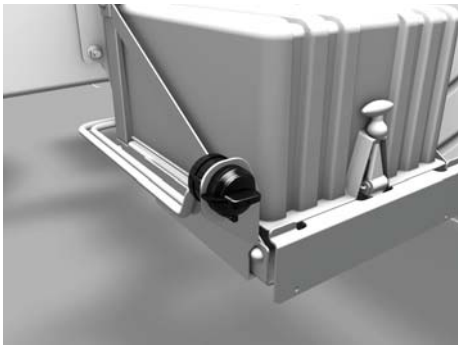
Mechanically operated main switches only have a switch outside the cabin.



D002104

Electronic main switch

The electronic main switch does not switch off at once when it is operated; this happens with a 10-second delay. This is to allow the after-running of various electrical systems on the vehicle.
The electronic main switch (usually located close to the battery pack).



D002105

There is also a switch on the control panel in the cabin.

3.4 RADIO

3.4.1 Basic radio

Controls

If the DAF basic radio is installed in the vehicle, it is possible to use the steering wheel switches to control the radio.

CAUTION: Operating the radio while the vehicle is in motion can result in a distraction from the road and traffic conditions. It is possible to lose control of the vehicle combination. Only operate the radio if the traffic conditions allow it.

For operating the radio see the radio manual.
In this document only the specific DAF functionalities are described.

Input connections

The input connections are combined in the park brake console.
The connection for audio streaming is placed near the park brake handle, see section 'Park brake console'.

USB Connections

Using the USB connection near the park brake handle, it is possible to connect a USB storage device to the radio.
MP3 and WMA audio formats are recognised and played via the radio.
To select the USB input, use the source button on the radio until the name of the USB device is displayed.
The USB connection also has a 500 mA power supply. It can be used to charge the connected device, such as an MP3 player or a mobile phone.

NOTE: The radio does not support Apple® devices, such as an iPod® or iPhone®.

Auxiliary connection

To connect an audio device to the radio, the auxiliary (AUX) connection can be used.
This connection is located near the USB connection in the park brake console.
The audio device can be connected with a stereo 3.5 mm jack plug.

To select the AUX input, use the source (SRC) button on the radio until 'AUX' is displayed.

Mute

The output sound of the radio is automatically muted in three situations:

- When a Forward Collision Warning is active; a buzzer inside the DIP is activated.
  See section 'Forward Collision Warning' in the chapter 'Adaptive Cruise Control'.
- When the Lane Departure Warning System is active; the sound of the LDWS is produced via the speakers of the audio system.
  See section 'Lane Departure Warning System' in the chapter 'Driving'.
- When the telephone is operated, the sound of the telephone is routed through the separate telephone speaker.
  See section 'Operating the telephone' in the chapter 'Instruments and controls'.

Display

Display illumination

The radio display and controls are illuminated for night-time viewing.
Dimming the vehicle interior lights also dims the lights of the radio display and controls.

Information on the master display

It is possible to see some of the radio features such as:

– Radio station information.
– Volume adjustment.

For more information on how the information is displayed, see chapter 'Master display'.

3.4.2 Truck Navigation Radio (TNR)

Controls

If the Truck Navigation Radio (TNR) is installed in the vehicle, it is possible to use the steering wheel switches to control the radio.

WARNING! Operating the Truck Navigation Radio (TNR) while the vehicle is in motion can result in a distraction from the road and traffic conditions.
It is possible to lose control of the vehicle combination.
Only operate the TNR if the traffic conditions allow it.

For operating the TNR, see the radio manual.
In this document only the specific DAF functionalities are described.

Input connections

The input connections are combined in the park brake console.
The connection for audio streaming is placed near the ashtray, see section 'Park brake console'.

USB Connections

NOTE: Using the USB connection near the park brake handle, it is possible to connect a USB storage device to the radio.
The TNR supports audio streaming of Apple® devices, such as an iPod® or iPhone®.

MP3, WMA or Apple® audio formats are recognised and played via the radio.
To select the USB input, use the source button on the radio until the name of the USB device is displayed.
The USB connection also has a 500 mA power supply. It can be used to charge the connected device, such as an MP3 player or a mobile phone.

Auxiliary connection

To connect an audio device to the radio, the auxiliary (AUX) connection can be used.

This connection is located near the USB connections in the park brake console. See section 'Park brake console'.
The audio device can be connected with a stereo 3.5 mm jack plug.

To select the AUX input, use the source (SRC) button on the radio until 'AUX' is displayed.

Bluetooth

Via the Bluetooth connection the TNR can play music tracks stored on a Bluetooth device.
Connecting a Bluetooth audio device to the TNR is done in the 'Setup' menu of the TNR; see the separate TNR manual for details.

To select the Bluetooth input, use the 'Media' button on the TNR until the name of the Bluetooth device is displayed.

NOTE: It is not possible to use the TNR as a hands-free car kit.
For this purpose use the telephone interface. See section 'Operating the telephone' in the chapter 'Instruments and controls'.

Mute

The output sound of the radio is automatically muted in three situations:

- When the Forward Collision Warning is active, a buzzer inside the DIP is activated.
  See section 'Forward Collision Warning' in the chapter 'Adaptive Cruise Control'.
- When the Lane Departure Warning System is active; the sound of the LDWS is produced via the speakers of the audio system.
  See section 'Lane Departure Warning System' in the chapter 'Driving'.
- When the telephone is operated, the sound of the telephone is routed through the speaker of the telephone interface system.
  See section 'Operating the telephone' in the chapter 'Instruments and controls'.

Navigation

The TNR contains a navigation system. This system can be controlled via the TNR controls.
For operating the navigation system, see the radio manual.

WARNING! It is not allowed to operate the navigation while the vehicle is in motion. This can result in a distraction from the road and traffic conditions.
It is possible to lose control of the vehicle combination.
To set the navigation, STOP the vehicle at a safe place.

It is possible to set some vehicle parameters in the TNR. The TNR navigates the vehicle so that it can reach its destination without any narrow streets or other traffic difficulties.
These parameters are:

– Vehicle (combination) width.
– Vehicle (combination) length.
– Vehicle (combination) height.
– Vehicle (combination) weight.
– Transportation of dangerous goods (ADR).

Display

Display illumination

The TNR display and controls are illuminated for night-time viewing.
Dimming the vehicle interior lights also dims the lights of the TNR display and controls.

Information on the master display

It is possible to see some of the radio features such as:

– Radio station information.
– Volume adjustment.

For more information on how the information is displayed, see chapter 'Master display'.

3.5 CABIN CLIMATE CONTROL

3.5.1 Heating and ventilation system control panel

1 Air distribution
2 Temperature control
3 Fan speed (selector knob for fresh air or recirculation position)
4 Air conditioning

D002027

1. Air distribution
See 'Air distribution selector'

2. Temperature control
See 'Temperature control'

3. Fan speed
See 'Fan speed'

4. Air conditioning (Optional)
See 'Air conditioning'

3.5.2 Air distribution selector

Dashboard vents

Dashboard vents and footwell vents

Footwell vents

Footwell vents and windscreen vents

Windscreen vents

D002038

3.5.3 Temperature control

The supply of heat can be smoothly set from 0% (blue) to 100% (red).

To achieve faster heating when the temperature outside is low, switch on the recirculation. In damp weather conditions, switch off the recirculation function after heating to prevent the windows from misting.

D002037

3.5.4 Fan speed

Fresh air position or recirculation position

D002036

The fan has two speed selections: one applies to recirculation, the other to fresh air.
The recirculation position is intended to:

- de-mist quickly or cool the cabin with the air conditioning,
- quickly heat the cabin,
- defrost the windows with the cabin heater and
- keep out undesirable odours.

NOTE: Switch on the recirculation without air conditioning for short periods only to prevent degraded air quality inside the cabin and increased moisture.

Fresh air
Fan speeds with fresh outside air ventilation valve open

Recirculation
Fan speeds with recirculation valve closed, hardly any supply of fresh outside air

3.5.5 Air conditioning

The cabin air can be cooled or dehumidified by the optional air conditioning system.

The air conditioning system only functions if:
- the engine is running,
- the fan speed selector knob (3) is **not** in the '0' position,
- the air conditioning switch (4) is operated.
  When the air conditioning is switched on, an indicator light in the switch is on.

D002027

Using the air conditioning
- When the air conditioning is in use, the windows must remain closed.
- To reduce the temperature quickly, first use the maximum air speed. Later, the air speed can be reduced.
- Avoid direct cold or draught on the body. Do not aim the air vents directly at the body.
- Make sure that the temperature difference between the inside and outside of the cabin does not exceed 5°C when you leave the cabin. You are therefore advised to switch off the air conditioning towards the end of the journey.
- Air conditioning consumes extra power and increases the fuel consumption.
- On extreme angles (slopes, ruts and difficult terrain) switch off the air conditioning to protect the compressor pump against unlubricated operation.
- Regularly (once a month) switch on the air conditioning briefly, even if cooling is not required. This prevents serious damage.
- To protect the battery and starter motor when starting the engine, you are advised to make sure that the air conditioning is switched off before the ignition. Therefore, switch off the air conditioning before you switch off the engine.

Cooling
- Switch on the air conditioning with the air conditioning switch (4).
- Turn the fan speed selector knob (3) to the fresh air position 1, 2, 3 or 4.

– For fast cooling, turn the fan speed selector knob (3) to the recirculation position 1, 2 or 3 for a short period. Then turn the fan speed selector knob (3) to the fresh air position 1, 2, 3 or 4.
– Turn the temperature control knob (2) to the desired position. For maximum cooling set the knob to the far left position in the blue area.
– Open the side and centre vents.

While heating, it is possible to use the air conditioning to remove moisture from the air in the cabin. This has the advantage that demisting of the window glass goes faster.

Dehumidification
– Switch on the air conditioning with the air conditioning switch (4).
– Turn the fan speed selector knob (3) to the fresh air position 1, 2, 3 or 4.
– Open the vents on the centre console and at the side windows and set them as desired.
– Control the temperature as desired with the temperature control knob (2).

NOTE: The air conditioning system is switched off when the engine coolant temperature becomes too high. This protects the engine.

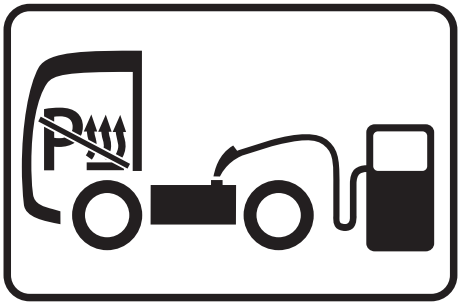
WARNING! The air conditioning system contains coolant under high pressure. Removal of any parts of the air conditioning system or other activities can cause burns or serious injury.
– ***Do not remove any parts of the air conditioning system.***
– ***Work on the air conditioning system may only be carried out by qualified personnel.***
– ***If the air conditioning fails to work, have it repaired by a DAF Service dealer as soon as possible to avoid further damage to the system.***

3.5.6 Auxiliary heater (air heating)

WARNING! Fuel fumes contacting a source of heat can cause an explosion and serious injury.
– ***Switch off the auxiliary heater when filling the tanks with fuel!***

WARNING! Exhaust gases of an operational auxiliary heater contain carbon monoxide, an invisible, odourless, but highly toxic gas. Inhalation of these gases may cause unconsciousness and death.

- ***Switch off the auxiliary heater when the vehicle is parked in a confined space.***

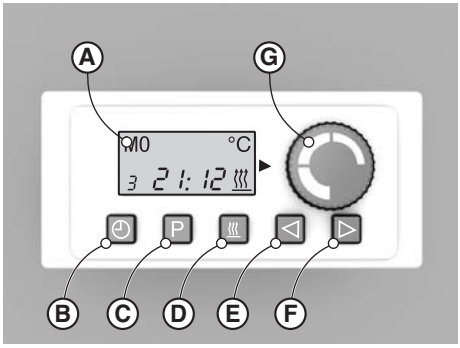


D001862

NOTE: Switch off the auxiliary heater when leaving the cabin for a prolonged period of time.

The (optional) auxiliary heater warms the air in the cabin and works independently of the vehicle heating system and ignition key position. The temperature in the cabin is thermostatically controlled. This thermostat also controls the speed of the built-in fan. The auxiliary heater has a memory into which three different switch-on times can be programmed. Programming the switch-on time up to seven days in advance is possible.

The operating panel of the auxiliary heater is, depending on the execution of the cabin, fitted in the side wall of the cabin on the driver or co-driver side.



D002039

A	Display
B	Time setting
C	Program selection
D	On/off
E	Decrease setting

F Increase setting

G Adjustable thermostat

Setting the time and date

1. Press and hold button (B) until the display starts flashing (after approximately 3 seconds).
2. Set the time with the buttons (E) and (F). Once the time has stopped flashing, it has been stored.
3. The day will start flashing.
4. Set the day with the buttons (E) and (F), and wait until the day has stopped flashing. The setting procedure is complete.

Switching on

Before the auxiliary heater can be switched on, the time and date must be set.

1. The auxiliary heater can be switched on in two different ways:
   1. Press the auxiliary heater switch in the centre console until the indicator light in the switch lights up, or
   2. Briefly press button (D) on the operating panel. The display (A) and the buttons light up. The burner symbol and the standard set burning time are shown in display A.
2. The desired temperature can be set using rotary switch (G). The setting range lies between 10°C and 30°C.

Switching off

1. The auxiliary heater can be switched off in two different ways:
   1. Press the auxiliary heater switch in the centre console until the indicator light in the switch switches off, or
   2. Press button (D) on the operating panel. The display and button illumination switch off.
2. The heater fan remains in operation for approximately 3 minutes to cool the heater.

Adjusting the standard set burner time

1. The heater must not be running.
2. Press and hold button (E) until the set operating time flashes.
3. Release button (E).
4. Set the desired standard burner time with buttons (E) and (F) (from 10 - 120 minutes). When the set operating time disappears, it has been stored.

Programming the switch-on time

1. Select a memory store. It is possible to program three memory stores:
   1. Press button (2) once for the first memory store. Digit 1 and the default time setting (12.00) appear in the display, or
   2. Press button (C) twice for the second memory store. Digit 2 and the default time setting (12.00) appear in the display, or

3. Press button (C) three times for the third memory store. Digit 3 and the default time setting (12.00) appear in the display, or
4. Press button (C) until the memory display disappears; no memory store is activated.

NOTE: It is not possible to select more than one memory store at the same time.

2. Briefly press button (E) or (F). The time starts flashing.
3. Set the desired switch-on time with buttons (E) and (F). Setting is only possible when the time flashes. The switch-on time has been stored in the memory when the time is no longer flashing.
4. After approximately 5 seconds, the day begins to flash. Set the desired day with buttons (E) and (F). Programming is completed when the display shows the current time. Or press button (C) to select another memory store
5. The activated memory store is visible in the display.

NOTE: It is not possible to program the switch-on time on vehicles certified for transportation of hazardous materials.

Deleting the programmed switch-on time

1. Select the memory store with button (C).
2. Press button (C) until no memory store is selected.

Faults

If there is a fault, the burner symbol flashes and a fault code is shown. In some cases a fault can be reset by switching off the heating with button (D) and then quickly on again. If the fault is not reset, switch off the auxiliary heater and have the heating inspected by a DAF Service dealer.

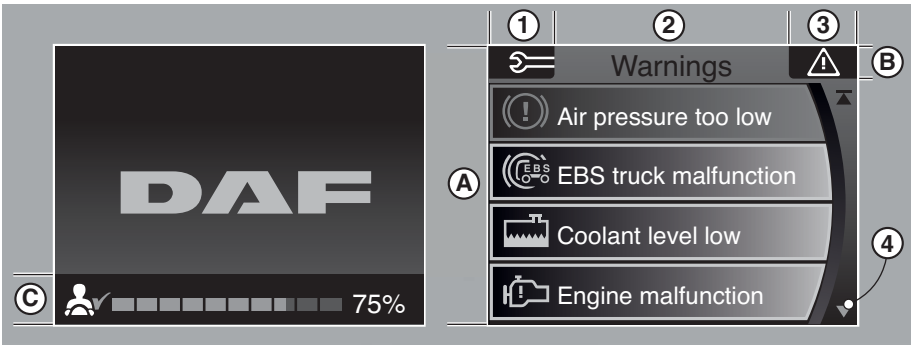
NOTE: To prevent faults during cold weather, switch on the auxiliary heater for 10 to 15 minutes once a month during the summer.
If necessary, install a separate fuel tank for the auxiliary heater.

Master display 4

4.1 GENERAL

The master display is part of the Vehicle Intelligence Centre (VIC-3). The master display consists of two different fields: an indication bar and an interactive and dialogue area.
In the interactive and dialogue area, messages can be displayed to show warnings and information regarding the function and operation of the various systems. These messages are displayed as pop-up screens.
In addition, the system contains a Menu Control Switch (MCS) and a buzzer.

4.2 MASTER DISPLAY



D001661-3

A Interactive and dialogue area.
B Indication bar.
C Driver Performance Assistant (DPA) status bar.
1 Symbols of selected menu. See section 'Menu overview'.
2 Menu title. If selected via the Menu Control Switch (MCS) or the Steering Wheel Switches (SWS).
3 Warning indicators. See section 'Warning indicators on master display'.
4 Scroll function available.

In the interactive and dialogue area various information can be displayed such as;

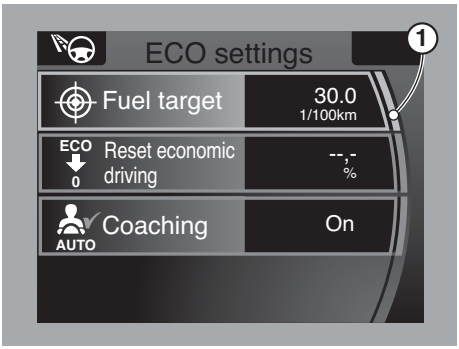
– System warnings. See section 'System warnings'.
– Information and settings.
– Main menu. See section 'Menu overview'.

Depending on the displayed information, the background colour of the screen is;

D001664

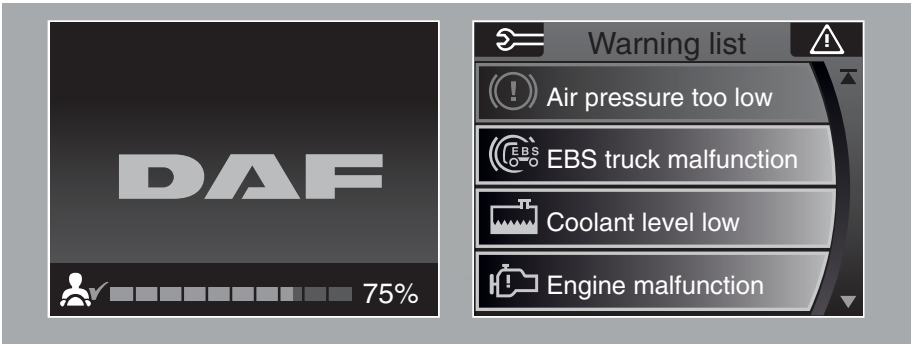
– Red (danger).
  These messages show information that requires immediate action by the driver and they cannot be suppressed.
– Yellow (warning).
  These messages show information that requires action as soon as possible and they can be suppressed.
– Blue (settings).
  These messages show information about settings and the values of these settings.
– Grey (information).
  These messages show information about the status (engaged or disengaged) of systems.
– Green (Driver Performance Assistant).
  These messages show information about the driver performance. See section 'Driver Performance Assistant (DPA) in chapter 'Driving'.

NOTE: If additional information on the settings is available or the settings can be adapted, an extra marker (1) is added to the right of the selected topic.



D001665-2

4.3 START-UP PHASE



D001663-2

If the ignition has been switched on and the engine is not yet running, the start-up screen is shown in the master display.

On start-up, the DAF logo appears in the master display and the following warning indicators on the instrument panel light up:
- AEBS switched off (yellow),
- LDWS switched off (yellow),
- MIL (yellow),
- Retarder (green),
- Park brake (red),
- Low brake performance (red),
- Truck EBS (yellow),
- Airbag (yellow),
- Vehicle Stability Control (VSC).

NOTE: Warning indicator activation depending on vehicle execution.

CAUTION: If an unknown warning indicator lights up, look for and get familiar with its function and the corresponding system.

Approximately 3 seconds after switching on the ignition, all warning indicators on the instrument panel disappear except the park brake warning, the MIL and those indicating a malfunction. See section 'Warning indicators on instrument panel'. for an explanation of the flash sequence of the MIL.
If faults are present, the system warnings start popping up. The red pop-ups appear first, followed by the yellow pop-ups. With the pop-up screens, the 'general warning' indicator and an acoustic signal are activated.
At the same time, the driver performance assistant (DPA) status bar appears in the master display.

After all the pop-ups have been displayed, the master display automatically switches to the warning list in the service info menu.
If there are red as well as yellow pop-ups, a red hazard warning triangle is displayed in the top right-hand corner of the master display.

NOTE: When there are more warnings than fit the display, this is indicated by arrows on the right side of the display. The warnings are displayed in order of priority. This means that the most important warning is displayed first.
Turning the Menu Control Switch (MCS) brings up the hidden ones. An arrow with a line attached to it indicates the beginning or end of the list.

NOTE: A red warning cannot be removed from the screen when the engine is running.
The red warnings can be suppressed by pressing the Menu Control Switch when the engine is not running. This allows selection of other menu options. The warning always reappears after returning to the main screen.
A continuous acoustic signal accompanies a red warning.

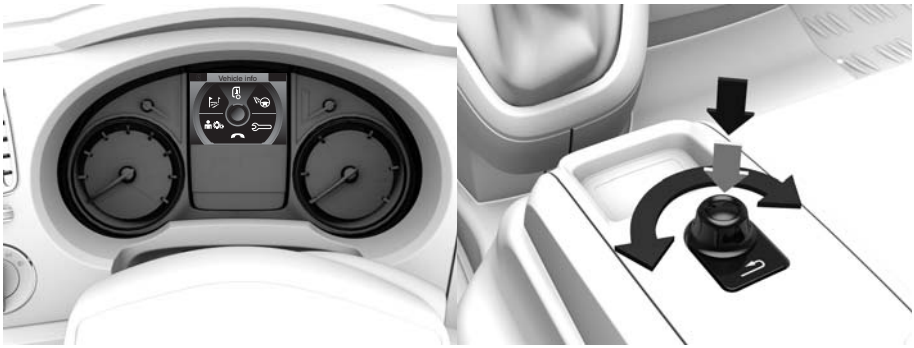
NOTE: Yellow warnings can be suppressed at any time.
A pulsating acoustic signal accompanies a yellow warning and sounds four times.

The red hazard warning triangle in the top right-hand corner of the master display remains active at all times.

NOTE: If the safety belt or safety belts are not fastened after the engine has been started, the red warning indicator 'Fasten safety belt' comes on. At the same time a grey pop-up screen is displayed. Both of them disappear as soon as the safety belt or safety belts are fastened. They reappear when a safety belt is loosened while the engine is still running.
If the warning is ignored, the pop-up disappears but the warning indicator remains on.

NOTE: The vehicle is equipped with a park brake warning system. If the driver's door is opened while the engine is switched off and the park brake is not applied, an acoustic signal is given and a warning symbol is shown on the instrument panel.

4.4 MENU CONTROL SWITCH (MCS)



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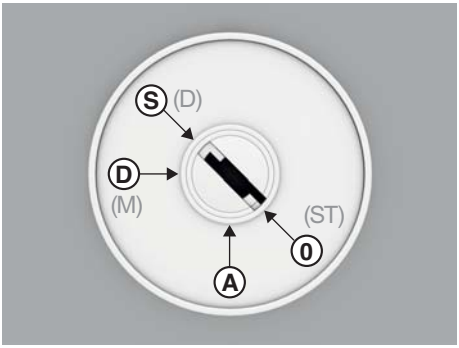
By pressing the Menu Control Switch (MCS) from a black screen, the main menu is opened.
Turn the MCS to switch between options in the main menu.
By pressing the MCS, the selected option is entered and sub menu 1 appears. See section 'Menu overview'.

Turn the MCS to browse through the options in sub menu 1.
By pressing the MCS, the option is entered. Depending on the selected option, either sub menu 2 or the information and setting screen appears.
If a second sub menu is present, the information and setting screens are opened by entering one of the displayed options. See section 'Menu overview'.

Scroll through the various options in the information screens by turning the MCS.
Change the values in the setting screens by turning the MCS.
Select an option or confirm a value by pushing the MCS.

Use the 'Exit' key under the MCS to go back in the menus.
A short press to go back to the main menu and a long press to close the menu.

NOTE: With the ignition key in the accessory position (A) only a limited number of functions are active on the main menu.



D001669

4.5 MENU OVERVIEW

NOTE: To go back to the main menu, briefly press the 'Exit' key under the Menu Control Switch. Hold down the 'Exit' key for 2 seconds to exit the menu.

Main menu Vehicle info	Sub menu 1	Sub menu 2	Information & settings
	Air supply		– Actual air pressure circuit 1 – Actual air pressure circuit 2
	Tyre pressure indication (TPI)		– Reset tyre pressure indication – Tyre pressure calibration request
	Soot filter information	Soot filter	– Actual soot level DPF filter – Status DPF switch – Duration indication of regeneration process
		Safety instructions	– Instructions on how to start a regeneration safely
		Operating instructions	– Step-by-step instructions before starting a regeneration

Main menu Driving support	Sub menu 1	Sub menu 2	Information & settings
	Economic driving	Eco performance	– Total – Anticipation – Efficient braking – Average fuel – Gear shifting – Hill driving
		Fuel consumption	– Current fuel consumption – Recent 15 minutes – Average fuel – Distance
		Eco settings	– Fuel target – Reset Eco driving – Coaching
		Tips & tricks	– Various pieces of information accessible by selecting the icon on the picture using the Menu Control Switch (MCS). Opening the information by pushing the MCS.
	Adaptive Cruise Control (ACC)		– Actual speed of the vehicle ahead – Actual distance setting from the vehicle ahead (1, 2, 3, 4 or 5) – Actual distance from vehicle ahead in meters or yards

Main menu Driving support	Sub menu 1	Sub menu 2	Information & settings
	Power Take Off (PTO)		– Total hours PTO-1 – Total hours PTO-2 – Fuel consumption PTO
	Axle load		– Axle load information truck – Reset truck payload – Axle load information trailer or semi-trailer – Reset payload trailer or semi-trailer
	Speed info		– Actual vehicle speed – Overspeed and overspeed registration

Main menu Service info	Sub menu 1	Sub menu 2	Information & settings
	Warning list		– All active system warnings
	Next service		– Date – Mileage – Service required check air filter – In this screen, a pop-up is opened when the MCS is pressed. Via this pop-up, the service reminder on the master display can be deactivated
	VIN number (Vehicle Identification Number)		
	Total fuel		– The total amount of fuel used since the vehicle went into service.

Main menu Telephone	Sub menu 1	Sub menu 2	Information & settings
	NOTE: Not accessible when driving		
	Truck phone	– (De)activation – Reading SMS – Selecting network	
	Bluetooth phone	– Connections – Search for phones – Bluetooth status – Remove devices	
	Phone volume	– Ringtone volume – Sleep mode on/off	

Main menu Settings	Sub menu 1	Sub menu 2	Information & settings
	Alarm & clock		– Alarm on/off – Set alarm time – Set local time – DIP active time (local, home) – Clock settings (12h, 24h)
	Language		– Driver card (if selected automatically, the card language is activated) – List of available languages
	Units		– Temperature (°C, °F) – Distance (km, miles) – Volume (switch from l to gal) – Fuel consumption (l/100 km, km/l) – Pressure (bar, psi)
	Dim settings		– Coupling the dashboard lights dim function with the reverse gear.
	Speed control		– EcoRoll on/off
	Tachograph card settings		– Drive time warnings on/off – Speed warnings on/off

Main menu Trip info	Sub menu 1	Sub menu 2	Information & settings
	Drive time		– Current activity and duration – Drive time – Daily drive time – Break time
	Trip 1		– Distance – Time – Average speed – Total fuel consumption – Average fuel consumption – Reset
	Trip 2		– Distance – Time – Average speed – Total fuel consumption – Average fuel consumption – Reset

4.6 SYSTEM WARNINGS

General

System warnings are displayed in a pop-up text screen followed by a post-warning indicator.
This post-warning indicator is identical to the information screen selected using the Menu Control Switch (MCS).

Serious fault

A **red warning pop-up** is activated on the master display when there is a serious fault.
When a red warning pop-up is activated, it displays;

– A red hazard warning triangle.
– A text explaining the fault.
– The corresponding icon or the word 'STOP'.

NOTE: The word 'STOP' appears when the park brake is not activated. In this situation the vehicle can move.
The icon appears when the park brake is activated. Therefore the vehicle is stationary.
A red warning pop-up can only be suppressed for the period it takes to look for additional information in the master display menu.

D001591

At the same time an acoustic signal activated.

CAUTION: If the red warning pop-up appears and/or the buzzer is audible while driving, there is a serious fault. Depending on the type of fault, it can result in serious damage to the vehicle. The vehicle may behave differently from normal.
– ***Stop the vehicle immediately while observing extra caution.***
– ***Park the vehicle in a safe place and switch off the engine.***
– ***Have a DAF Service dealer correct the problem as soon as possible.***

Less serious fault

If there is a less serious fault, a **yellow warning pop-up** and a short acoustic signal are activated. The yellow warning pop-up displays;
– A yellow hazard warning triangle.
– A text explaining the fault.
– The corresponding icon.

When yellow warnings appear on the master display, you may continue driving, but take action at the first opportunity to remedy the fault. Have a DAF Service dealer correct the problem as soon as possible.

CAUTION: The vehicle may behave differently than usual with a yellow warning activated.
– ***Drive the vehicle with extra caution.***
– ***Have a DAF Service dealer correct the problem as soon as possible.***

NOTE: A yellow warning pop-up can be suppressed.

NOTE: All system warnings can be viewed in the warning list of the master display menu. The warnings are shown starting with the most urgent one. The warning list is opened using the Menu Control Switch (MCS). If there are more warnings than lines in the menu, the scroll function is active.

Together with a system warning, a warning indicator can be activated. See section 'Warning indicators on master display'.

4.7 WARNING INDICATORS ON MASTER DISPLAY

General

These icons are used as warning indicators on the instrument panel and as part of master display screens.
The warning indicators on the instrument panel have a fixed colour. See section 'Warning indicators on instrument panel'.
If an icon is displayed as part of a master display screen its colour is defined by the background colour of the screen. See section 'Master display'.

Park brake not applied
If the driver's door is opened while the engine has been switched off and the park brake has not been applied, an acoustic signal is given and a warning symbol is shown on the master display.

NOTE: On the master display this warning can be changed from red to yellow by a DAF Service dealer. The indicator on the instrument panel remains red.

EBS system failure in the EBS system of the truck. See section 'Brakes' in the chapter 'Driving'.

EBS system failure in the EBS system of the trailer. See section 'Brakes' in chapter 'Driving'.

This warning can give the following text descriptions:
1. Air pressure too low.
This warning is visible when the pressure in one of the service brake circuits is less than 5 bar.
2. Air supply system malfunction.

3. Low brake performance.
See section 'Brakes (Brake performance monitoring)' in chapter 'Driving'.

Cabin lock is open
Check if the cabin is fully tilted back. See section 'Tilting the cabin' in chapter 'Emergency repairs'.

DPF (soot filter)
This warning is activated when the soot level in the Diesel Particulate Filter (DPF) is (too) high or the soot filter is contaminated or the EAS system malfunctions. See section 'Regenerating the DPF' in the chapter 'Driving'.

High Exhaust System Temperature (HEST)
When regeneration is in progress and the exhaust gas temperature reaches levels that can potentially harm bystanders or the surrounding area, this indicator is shown.

Emission failure
Engine power is derated up to 50%.
Derate is only activated or deactivated at vehicle standstill.
The engine is derated under the following conditions:
1. Emission level is above the legal limits.
2. Malfunction of the EAS system.

This warning symbol may relate to the following text descriptions:
1. AdBlue level low or AdBlue tank empty.
Fill up the AdBlue tank. See section 'Refuelling diesel and AdBlue' in chapter 'Driving'.
2. Incorrect AdBlue.
Replace the incorrect AdBlue. See section 'Refuelling diesel and AdBlue' in chapter 'Driving'.
3. AdBlue dosing malfunction
See section 'Refuelling diesel and AdBlue' in chapter 'Driving'.

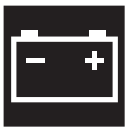
NOTE: When this warning is active, the MIL appears, the engine power is derated and eventually the vehicle speed is limited. After refilling the AdBlue tank, this warning, the MIL, engine derate and speed limit are switched off. A small quantity of AdBlue remains in the AdBlue tank even if the ***AdBlue tank empty*** *warning symbol is active.*

This warning symbol is related to the EAS system and can give the following text descriptions:
1. Speed limit at next standstill.
The speed limit is activated the next time the vehicle stops.

2. Speed limit 20 km/h (or 12 mph).
The vehicle speed is limited to 20 km/h or 12 mph.

Coolant level too low
1. Coolant level low.
See section 'Topping up coolant' in chapter 'Inspections and maintenance'.
2. Coolant level sensor.

Coolant temperature too high
This warning symbol is visible when the temperature of the coolant exceeds the maximum permissible value. Check the following points:
1. The coolant level. Caution – danger of scalding.
See section 'Topping up coolant' in chapter 'Inspections and maintenance'.
2. The poly-V-belt and water hoses.
3. The fan clutch.



Alternator warning
Alternator charge voltage not correct.
If the charging voltage of the alternator rises above 30 V, this warning symbol is shown. The battery voltage is then too high and the battery may start to boil. In this case, switch on as many electrical consumers as possible.
If the symbol is still not extinguished, do not continue to drive under any circumstances!

Engine warning.
1. Engine warning.
2. Engine overspeed.
3. Overheated starter motor.
The starter motor is inoperative for 15 minutes.
4. Engine shutdown.
See section 'Engine idle shutdown' in chapter 'Driving'.
5. Accelerator pedal warning.

NOTE: Depending on the fault, the engine can switch over to emergency control.

This warning symbol may relate to the following text descriptions:
1. Transmission warning
When the vehicle has an AS Tronic gearbox, depending on the malfunction, the gearbox can only be shifted manually.
2. Transmission temperature too high
When the vehicle has an AS Tronic gearbox, the gearbox can only be shifted manually.

This warning symbol may relate to the following text descriptions:
1. Central vehicle controller.
Fault in the electronics of the VIC (Vehicle Intelligence Centre). The VIC gathers information and actuates vehicle functions.
2. Configuration error.
The programmed chassis numbers in the electronics of the engine and the immobiliser do not match.

Oil pressure too low
Switch off the engine immediately.
Check the engine oil level. See 'Engine oil level' in chapter 'Inspections and maintenance'.

This warning symbol may relate to the following text descriptions:
1. Lane departure system disabled.
LDWS is switched off by operating the LDWS switch on the control panel.
2. Lane departure system malfunction
LDWS has detected a system malfunction.

ABS trailer warning
Faulty trailer ABS system. See section 'Brakes' in chapter 'Driving'.

ABS/EBS trailer not connected
This warning symbol is activated when the trailer ABS/EBS connector is not connected.

This warning symbol may relate to the following text descriptions:
1. Engine brake or retarder warning.
There is a fault or the oil temperature in the retarder exceeds the maximum value.
2. Engine brake or retarder active.
The retarder is engaged and the accelerator pedal is depressed.
In case of an exhaust brake, switch off the exhaust brake. Also see chapter 'Driving'.

Alarm system warning

This warning symbol may relate to the following text descriptions:
1. PTO 1 warning.
2. PTO 2 warning.

This warning is activated if:
– the PTO was active and is switched off, not by the PTO operation switch or other 'switch off' conditions (for example, low system air pressure), or
– the PTO is not deactivated within a defined time after the PTO is switched off using the PTO operation switch or by the 'switch off' conditions (for example, park brake released), or
– the PTO was already active when the ignition was switched on.

3. PTO 1 not active.

4. PTO 2 not active.

This warning is activated if:
– the PTO is not active within a defined time after the PTO 'switch on' command is received (by the PTO control switch or another request) and all the 'switch on' conditions are fulfilled, or
– the PTO was active and is switched off based on the PTO status switch or the PTO 'switch off' conditions while the PTO operation switch is in the 'on' position.

Brake lining wear truck
This symbol lights up if the brake pad on one or more wheels is worn.

Vehicle Stability Control
Fault in VSC (Vehicle Stability Control)

This warning symbol may relate to the following text descriptions:
1. Grid heater active.
2. Grid heater system.

Airbag warning
See section 'Airbag safety instructions' in the chapter 'Warnings and safety regulations'.

Fasten safety belt

Body Builder Module malfunction.
Text depends on vehicle configuration.

Drain fuel filter
Drain the fuel prefilter and moisture separator. See chapter 'Inspections and maintenance'.

This warning symbol may relate to the following text descriptions:
1. Hill Start Aid active.
2. Brake release.
See section 'Hill Start Aid' in the chapter 'Driver assist systems'

This warning symbol may relate to the following text descriptions:
1. Air suspension
Defect or fault in the air suspension system ECAS (Electronically Controlled Air Suspension). The vehicle may not be driven further if the normal driving height on both sides of the vehicle cannot be maintained. For example, a defective air bellow.
See chapter 'Air suspension'.
2. ACC system switched off
The vehicle is not at normal driving height (air suspension) above 40 km/h.
See section 'Engaging and Disengaging Adaptive Cruise Control (ACC)' in chapter 'Safety systems'.

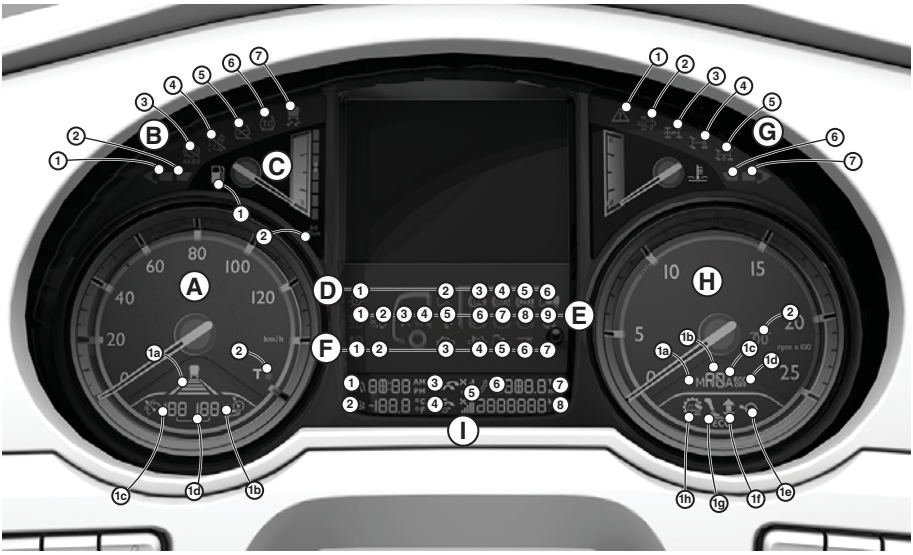
This warning symbol may relate to the following text descriptions:
1. ACC system warning.
See section 'ACC system warning' in chapter 'Safety systems.
2. ACC system switched off.
See section 'Engaging and Disengaging Adaptive Cruise Control (ACC)' in chapter 'Safety systems'.
3. ACC sensor dirty.
See section 'AEBS/ACC sensor' in chapter 'Warnings and safety regulations'.

System capability warning

D001723

If ACC (Adaptive Cruise Control) is not able to maintain a safe distance to the vehicle ahead, the **'Distance'** warning is activated on the information screen of the master display. The driver must assist the vehicle braking by using the service brake.
See section 'Adaptive Cruise Control (ACC)' in chapter 'Safety systems'.

4.8 WARNING INDICATORS ON INSTRUMENT PANEL



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A1	Speedometer display
A1a	ACC following distance
A1b	Not used
A1c	Cruise control or speed control set speed active
A1d	Not used
A2	Tachograph warning
B1	Left direction indicator, truck
B2	Left direction indicator, trailer
B3	AEBS off
B4	Lane Departure Warning System
B5	Anti Slip Regulation off
B6	Anti Slip Regulation
B7	Vehicle Stability Control
C1	Fuel level low
C2	AdBlue level low
D1	Bulb failure
D2	Work light
D3	Hill Start Aid
D4	ABS truck
D5	ABS trailer
D6	Not used
E1	Main beam
E2	Daytime running lights off
E3	Airbag
E4	Safety belt reminder
E5	Splitter low
E6	Engine brake or retarder active
E7	Park brake
E8	Low brake performance
E9	Rear fog lights
F1	Front fog lights
F2	Not used
F3	MIL indicator
F4	High Exhaust System Temperature (HEST)
F5	Chassis not at normal driving height

F6	Not used
F7	Reset Trip (I6)
G1	General warning
G2	Diesel Particulate Filter (DPF)
G3	Not used
G4	Cross-axle differential lock (Diff lock)
G5	PTO
G6	Right direction indicator, trailer
G7	Right direction indicator, truck
H1	Tachometer display
H1	Tachometer display
H1a	Manual gear selecting active
H1b	Selected gear
H1c	Automatic gear selecting active
H1d	Not used
H1e	Manoeuvre mode
H1f	Gear up/down
H1g	Not used
H1h	Off road
H2	Grid heater
H2	Grid heater
I1	Clock/alarm
I2	Temperature/frost warning
I3	AM/PM
I4	Celsius/Fahrenheit
I5	Connected phones
I6	Service indicator
I7	Trip
I8	Mileage

A1. Speedometer display
The cruise control settings are visible in the speedometer display.
See section 'Instrument panel' in the chapter 'Instruments and controls'.

A2. Tachograph fault
Consult the tachograph user manual.

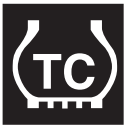
B1. Left direction indicator, truck
This warning indicator flashes together with the truck direction indicators.

B2. Left direction indicator, trailer
On a truck and trailer (semi-trailer) combination, this warning indicator flashes together with the trailer direction indicators (semi-trailer).

B3. Advanced Emergency Braking System (AEBS)
This warning indicator is visible when AEBS is switched off.

B4. Lane Departure Warning System off
This warning indicator is visible when LDWS cannot detect any lines or the camera is blocked or the LDWS switch was operated to disable or a malfunction is detected.
See section 'Lane Departure Warning System (LDWS)' in the chapter 'Safety systems'.

B5. Anti Slip Regulation off
This warning indicator is visible when the Anti Slip Regulation is switched off by the driver.
See section 'Anti Slip Regulation' in the chapter 'Safety systems'.



B6. Anti Slip Regulation
This warning indicator starts flashing when the ASR system intervenes.
See section 'Anti Slip Regulation' in the chapter 'Safety systems'.

B7. Vehicle Stability Control (VSC)
This warning indicator flashes when the VSC system intervenes. When this warning indicator remains on, there is a fault in the system.
See section 'Vehicle Stability Control' in the chapter 'Driving'.

C1. Fuel level low
This warning indicator is visible when the reserve fuel level is reached. The fuel reserve is about 10% of the tank capacity. Refuel as soon as possible.

C2. AdBlue level low
This warning indicator turns red when a critical AdBlue level is reached. The system starts giving warnings on the master display. Refill as soon as possible.
See section 'Refuelling diesel and refilling AdBlue' in the chapter 'Driving'.

D1. Bulb failure
This warning indicator is visible when a light bulb fails. Replace the defective bulb immediately.

D2. Work light
This warning indicator is visible when the work light on the cabin cross member or the lighting in the loading space is on.

D3. Hill Start Aid
This warning indicator is visible when the Hill Start Aid is active.

D4. ABS truck
This warning indicator is visible when the ignition is switched on, and will disappear after 3 seconds. When this warning indicator remains visible there is an ABS system failure in the ABS system of the truck.

D5. ABS trailer
This warning indicator is visible when the ignition is switched on and a trailer with ABS system is attached. The indicator will disappear after 3 seconds. When this warning indicator remains visible there is an ABS system failure in the ABS system of the trailer.

E1. Main beam
This warning indicator is visible when the main beam is switched on or when the main beam flash is operated with the left-hand steering column switch.

E2. Daytime running lights off
This warning indicator is visible when the daytime running lights are switched off.

E3. Airbag warning

E4. Safety belt reminder

E6. Engine brake or retarder active
This warning indicator is visible when the engine brake or retarder is active.
This indicator starts to blink and a pop-up warning is displayed on the master display when the accelerator pedal overrules the function of the MX Engine Brake or retarder.
The indicator also blinks when the brake torque is reduced as a result of high engine temperature.

NOTE: The indicator is not visible when the engine brake or retarder is active during third brake integration or a speed reduction by ACC (Adaptive Cruise Control).

E7. Park brake
This warning indicator is visible when the park brake is applied, or when the pressure in the air supply system is too low to release the park brake.

E8. Low brake performance
See section 'Brakes' in the chapter 'Driving'.

E9. Rear fog lights
This warning indicator is visible when the rear fog lights are switched on.

F1. Front fog lights
This warning indicator is visible when the front fog lights are switched on.

F2. Not used

F3. MIL
This warning indicator is visible when the emission level is above the legal limit or in case of a generic engine warning.
The function of this indicator is checked as follows:
– Contact on and the engine not running.
– The indicator lights up for 5 seconds, goes off for 10 seconds and on again for 5 seconds. This is the so called bulb and system check.
– Then after 5 seconds the indicator starts to flash for 1 second with a waiting period of 5 seconds.
– Any other flash pattern indicates a failure.

NOTE: Due to legislative requirements, it may be a criminal offence to continue driving the vehicle with the MIL indicating a failure.
Consult a DAF Service dealer on how to read the flash pattern.

NOTE: During a trip and depending on the warning, the indicator flashes or remains on to indicate a failure.

During a trip and depending on the warning, the indicator flashes or remains on to indicate a failure. Consult the nearest DAF Service dealer for assistance.

NOTE: Due to legislative requirements, it may be a criminal offence to continue driving the vehicle with the MIL indicator indicating a failure.

F4. High Exhaust System Temperature
This indicator is shown when:
– A regeneration is in progress and the exhaust gas temperature reaches values which potentially can be harmful to bystanders or the surrounding area and the vehicle speed is below a certain value.

– The exhaust gas temperature reaches values that can potentially be harmful to bystanders or the surrounding area and
– The vehicle speed is below a certain value.

F5. Chassis not at normal driving height
This warning indicator is visible when the chassis is not at normal driving height.

G1. General warning
This warning indicator is visible when there is a fault in a vehicle system. The master display shows which vehicle function has triggered the warning.

G2. Diesel Particulate Filter
When the soot level in the DPF or soot filter is (too) high, or the filter is contaminated, this warning indicator is visible.

G4. Cross-axle lock (Differential lock)
This warning indicator is visible when the cross-axle lock is active. See section 'Differential lock' in the chapter 'Driving'.

G5. PTO
This warning indicator is visible when the PTO is active.

G6. Right direction indicator, trailer
On a truck and trailer (semi-trailer) combination, this warning indicator flashes together with the trailer direction indicators (semi-trailer).

G7. Right direction indicator, truck
This warning indicator flashes together with the truck direction indicators.

H1. Tachometer display
The gearbox settings are visible in the tachometer display.
AS Tronic automatic gearbox:
– Current gear indicator (H1b).
– Manoeuvre mode setting (H1e).
– Manual or automatic mode (H1a and H1c).
– Off-road mode active (H1h).

Manual gearbox:
– High or low gearing selected (splitter) (H1g).
– Gear shift advice (H1f).

H2. Grid heater
This warning indicator is visible when the grid heater is active.

I. Alarm and time (I1), outside temperature (I2), telephone info (I5), service indicator (I6), trip (I7) and odometer (I8) display.
The display is activated when the ignition is switched on.
The time is shown in the top left-hand section of the display. The standard daylight saving time can be altered on the tachograph. See the tachograph operating manual.
When the alarm is set, this is indicated by an icon on the left-hand side of the time display. The alarm can be set in using the master display; see section 'Menu overview' in the chapter 'Master display'.
The outside temperature is displayed in the bottom left-hand section. A frost warning can be displayed on the left-hand side of the temperature display.
The right-hand side shows the trip odometer. The trip odometer can be reset using the master display, see section 'Menu overview' in the chapter 'Master display'.
The wrench symbol shown between the telephone info and the trip odometer indicates the vehicle is due for service. Detailed information about the service is given on the master display; see section 'Menu overview' in the chapter 'Master display'.
The telephone info can show if one or more Bluetooth phones are connected and the signal strength. Below this information you can see if the truck phone is activated and its signal strength.

4.9 OVERVIEW OF SYSTEM ABBREVIATIONS

Abbreviation	Explanation	Function
ACC	Adaptive Cruise Control	The function of Adaptive Cruise Control is to maintain a pre-set following distance behind vehicles driving slower than the set speed of the activated cruise control. This is done by limiting the vehicle driving power, and if necessary, requesting vehicle braking power.
ACH-EA	Auxiliary Cabin Heater - Eberspächer Air	This is the auxiliary air heater. The auxiliary air heater (Airtronic) is used for: – preheating the cabin interior, – heating the cabin interior, – heating the cabin interior in conditions in which the engine produces too little heat to keep the cabin at the desired temperature.
ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route	This is a European directive on the transport of hazardous substances by road. When the main switch is used, the earth connection of the electrical system is interrupted.
AEBS	Advanced Emergency Braking System	Warns the driver of the distance and/or time to collision with the vehicle ahead. Activates the brake system, if necessary.
ALS-S	Alarm System - Scorpion	This is the alarm system. The alarm system is a break-in and theft protection system that reacts to a number of signals. The (input) signals that can set off the alarm come from various sensors and switches. This enables differentiation between exterior and interior protection.
ATC	Automatic Temperature Control	This is the automatic temperature control. The ATC heater unit maintains a constant temperature inside the cabin during a trip.

Abbreviation	Explanation	Function
BBM	Body Builder Module	This is the body builder module. The body builder module gathers body builder-related information and actuates vehicle functions.
CAN	Controller Area Network	This is the CAN network. When data is transferred via the CAN network, all data is transferred over two wires, regardless of its volume or diversity.
CDS-4	Central Door locking System - version 4	This is the central door locking system. The purpose of the central door locking system is to simultaneously lock all the doors of the vehicle.
DIP-5	DAF Instrument Panel - version 5	This is the instrument panel. The DAF instrument panel provides the driver with information via indicators and/or the master display.
DTCO	Digital Tachograph	This is the digital tachograph. The tachograph records driving and rest times, the distance travelled and speed on a tachograph card. It also transmits the vehicle speed to other vehicle systems.
EAS-3	Emission Aftertreatment System - version 3	This is the Emission Aftertreatment System. The Emission Aftertreatment System consists of: DOC (Diesel Oxidation Catalyst), DPF (Diesel Particulate Filter), SCR (Selective Catalytic Reduction), AMOX (Ammonia Diesel Oxidation Catalyst) for the reduction of NOx and PM.
EBS-3	Electronic Brake System - version 3	This is an electronically controlled brake system. An electronic control unit controls the output pressure to the brake cylinders. To calculate the necessary brake pressure, the electronic control unit receives various signals from the sensors.

Abbreviation	Explanation	Function
ECAS-4	Electronically Controlled Air Suspension system - version 4	This is an electronically controlled air suspension system. The two main functions of the electronically controlled air suspension system are: 1. Adjustment of the chassis height when loading and unloading. This control maintains a constant vehicle height independent of the load. 2. Adjustment of the air suspension while driving. The chassis height is automatically controlled while the vehicle is being driven.
ECS-DC6	Engine Control System - DAF Cummins - version 6	This is the engine management system. The engine management system controls the common rail fuel system and the EAS system. Fuel injection is managed by an electronically controlled injector.
ELC	Electronic Light Controller	Controls the interior and exterior lighting and the lighting of the connected trailer.
FMS	Fleet Management System	Information can be exchanged between the vehicle and the home base using the Fleet Management System.
HD-OBD	Heavy-Duty On-Board Diagnostics	This is used to check compliance with agreements relating to emissions monitoring.
LDWS	Lane Departure Warning System	The LDWS warns the driver when the vehicle unintentionally departs from its lane.
MCS	Menu Control Switch	This is the Menu Control Switch. Using this switch, the driver can summon the requested information on the master display of the DAF instrument panel.
MGS	Mechanical Gear Shift	This is the mechanical gearbox operation.

Abbreviation	Explanation	Function
MTCO	Modular Tachograph	This is the modular tachograph. The tachograph records driving and rest times, the distance travelled and speed on a tachograph disc. It also transmits the vehicle speed to other vehicle systems.
PCI	PACCAR common rail injection	An electronically controlled pump unit and an electronically controlled injector control the fuel injection.
PTO	Power Take Off	When energy required for the superstructure is taken from the vehicle, a PTO is used.
SLP	Safe Loading Pass	This is an English directive on the transport of hazardous substances by road. When the main switch is used, the earth and power supply connections of the electrical systems are interrupted.
SWS	Steering Wheel Switches	The steering wheel switches are used to control vehicle and engine functions.
VSC	Vehicle Stability Control	This is the vehicle stability control. The vehicle stability control signals a pending instability and intervenes if necessary.
VIC-3	Vehicle Intelligence Centre - version 3	The VIC-3 gathers information and actuates vehicle functions.

Inspections and maintenance 5

5.1 CHECKS

5.1.1 Overview of daily checks

Overview of the driver's daily checks

- Correct operation of lights and instruments:
  - Check the operation of the exterior lighting. See section 'Exterior lighting'.
  - Check the operation of the horn, windscreen wipers and washers.
- System warnings using the Menu Control Switch. See section 'Menu overview' in the chapter 'Master display'.
- Fuel level.
- Engine oil level. See section 'Engine oil level'.
- AdBlue level.
- Correct setting of seat and mirrors.
- Coolant level. See section 'Coolant level'.
- Fluid level in the windscreen washer reservoir. See section 'Windscreen washer fluid level'.
- Air filter indicator.
- Possible air, coolant or oil leaks.
- Wheel attachment and tyre pressures.
- Tread depth of tyres.
- Tread of each tyre for even distribution of wear pattern.
- Trailer:
  - Check the trailer coupling or fifth wheel for correct attachment and correct operation.
  - Check the connections for lighting and brakes.
  - Check the operation of the lighting, brake lights and direction indicators.
  - Check the operation of brakes.
  - Check the condition and pressure of the tyres.

NOTE: When a system warning or leakage is found, contact a DAF Service dealer.

WARNING! Flammable materials in the vicinity of the exhaust system can create a fire. This can result in serious injury and damage to the vehicle.

- ***Remove cleaning rags, flammable materials, accumulated dirt and so on in the vicinity of the exhaust system, including the catwalk.***

5.1.2 Overview of weekly checks

Overview of the driver's weekly checks:

- Brake system air dryer
- Batteries
- Automatic Greasing System

5.1.3 Opening the front panel

Open the front panel by gripping it at the bottom and lifting it up. The front panel tilts upwards and is held in position by two gas struts.

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5.1.4 Coolant level

The master display shows the 'Coolant low' warning when the coolant level is too low.

Topping up coolant

WARNING! Scalding steam and hot coolant under pressure may escape when removing the expansion tank filler cap while the engine is hot. This can cause severe burns and serious injury.

- ***Never remove the expansion tank filler cap while the engine is still hot.***
- ***Wait until the coolant temperature is lower than 50°C.***
- ***Place a cloth over the filler cap and unscrew it carefully to relieve excess pressure. The filler cap can then be fully unscrewed.***

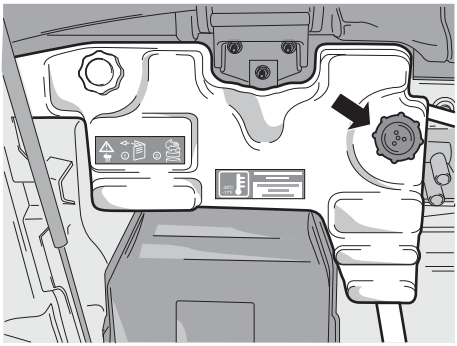
WARNING! Coolant is a toxic fluid. Physical contact can lead to serious health problems.

- ***If there is contact with the eyes: rinse with plenty of water for at least 15 minutes and consult a doctor.***
- ***Avoid prolonged or repeated contact with the skin. If there is contact with the skin: rinse the skin profusely with plenty of water.***
- ***If swallowed: do NOT induce vomiting. Rinse the mouth, drink two glasses of water and consult a doctor.***

CAUTION: Topping up coolant in a hot and running engine can damage the engine.

- ***Top up when the engine is not running.***
- ***Top up when the engine is cold.***
- ***Top up slowly with coolant.***

NOTE:
- *Make sure that the vehicle stands on a flat and level surface when topping up coolant.*
- *Always use coolants which meet the DAF specifications. See section 'Coolant' in the chapter 'Technical data'.*



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1. Open the front panel. See section 'Opening the front panel'.
2. Remove the filler cap (1) of the cooling system.
3. Check the coolant level. The coolant level must be at the base of the filler opening.
4. If necessary, top up the coolant with the specified coolant. See section 'Coolant' in the chapter 'Technical data'.
5. Install the filler cap.
6. Close the front panel.

NOTE: If the coolant frequently needs topping up or there are any signs of coolant leakage, consult a DAF Service dealer.

5.1.5 Engine oil level

NOTE: The oil level can only be measured when the engine is not running.

CAUTION: An incorrect oil level can seriously damage the engine.
- ***Make sure that the vehicle stands on a flat and level surface when the oil level is measured.***

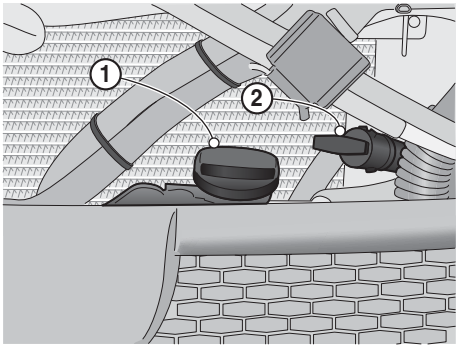
Oil level check

Check the engine oil level only when the engine has not run for at least 15 minutes.

NOTE: It takes approximately 15 minutes for all the oil to run into the sump when the engine is 'warm'. If the dipstick is checked immediately after switching off the engine or immediately after oil has been added, the level shown on the dipstick will be too low.

Topping up engine oil

*NOTE: For topping up engine oil **use the same engine oil brand, grade and ACEA class** as the oil filled at the last oil change. Only use engine oil that meets DAF specifications. See section 'Engine oil' in the chapter 'Technical data'.*



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1. Make sure that the vehicle stands on a flat and level surface.
2. Apply the park brake.
3. Open the front panel.
4. Pull the dipstick (2) out of the holder.
5. Wipe the dipstick clean with a lint-free cloth.
6. Replace the dipstick in its holder. Withdraw the dipstick again and check the oil level.
7. If necessary, fill oil through the filler opening (1) until the oil level reaches the maximum mark.
   For the difference between the minimum and maximum engine oil levels, see chapter 'Technical data'.

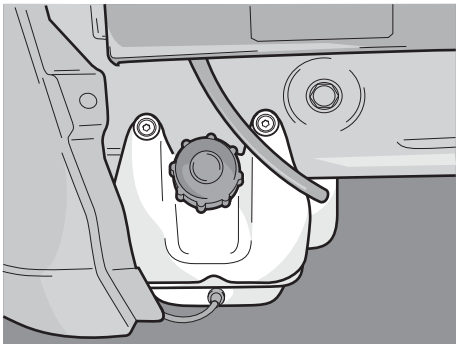
   NOTE: Do not top up above the maximum level.
8. Top up with small amounts of engine oil (maximum 2 litres each time) through the filler opening.
9. Replace the dipstick in its holder.

   NOTE: The dipstick must be pushed all the way into the holder after the oil level check is complete. This prevents oil leakage via the dipstick holder.
10. Install the filler cap and close the front panel.

5.1.6 Windscreen washer fluid level

The master display shows the 'Washer fluid level low' warning when the windscreen washer fluid level is too low.

The filler cap of the windscreen washer reservoir is located to the left side above the expansion tank.



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1. Open the front panel. See section 'Opening the front panel'.
2. Remove the filler cap (1) from the windscreen washer reservoir.

NOTE: Use all-season screenwash.

3. Check the fluid level via the filler opening. If necessary, correct the fluid level.
4. Install the filler cap.
5. Close the front panel.

5.1.7 Exterior lighting

With exception of the LED lights, the status of all regulated vehicle lights is monitored by the vehicle's electronics.
Any measured defect is displayed as a warning on the master display.

NOTE: Regulated vehicle lights do not include beacon lights, work lights and trailer lights.

In addition, the exterior lights can be manually checked by the driver through:

– Physically operating and checking all lights.
– Using the exterior light check function on the ignition key or hand-held transmitter.

Using the exterior light check function

1. Before getting into the cabin, press the exterior light check switch (1) on the ignition key or hand-held transmitter for at least two seconds.

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2. Now the exterior light check function of the vehicle starts.
   The exterior lights are activated in the following sequence:
   – The front fog lights or dipped beam and the brake lights are active.
   – All direction indicators are active.
   – The main beam and roof lights (sky lights or auxiliary lights) and the reverse lights are active.
   – The dipped beam and rear fog lights are active.

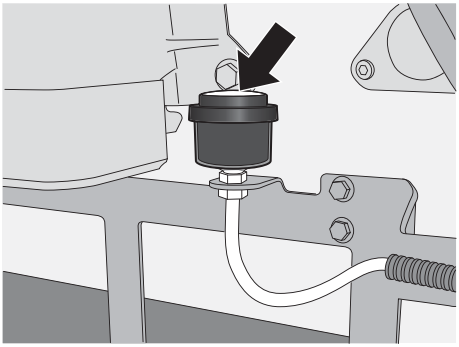
NOTE: All marker lighting is continuously active during the exterior lights check.

NOTE: Defects are not stored and displayed on the master display as the ignition is still switched off.
The total procedure repeats itself several times to provide enough time to walk around the vehicle.

3. To stop the check, press the exterior light check switch for one second or press the door lock or unlock button on the ignition key or hand-held transmitter.

5.1.8 Air filter indicator

There are two types of air filter indication being:
– a mechanical air filter indicator located behind the front panel of the cabin.
– an electronically controlled air filter indication with pop-up warning on the master display.



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Mechanical air filter indicator

1. Open the front panel. See section 'Opening the front panel'.
2. Check the air filter indicator. If the indicator is in the red area (showing the text 'service'), the air filter is seriously fouled and must be replaced. Consult a DAF Service dealer.
3. Close the front panel.

Electronically controlled air filter indicator

The engine electronic controls the condition of the air filter. If the air filter is seriously fouled and must be replaced a pop-up warning is shown on the master display. Together with the pop-up warning the service indicator on the instrument panel lights up. See section 'Warning indicators on instrument panel' in the chapter 'Master display'.

*NOTE: Clogged air filters lead to increased fuel consumption and loss of engine power. It is **not** allowed to wash out or to clean the filter with an air hose for reuse.*

5.1.9 Wheels and tyres

– Remove any stones and so on from the tread and from between the tyres (if twin wheels are fitted).
– Check for evidence of wear and damage and for nails or other foreign objects caught in the tyres.
– Check the attachment of the wheels.
– Check the tyre pressures (do not forget the spare wheel). Check and correct the tyre pressures while the tyres are cold. See 'Technical data' or the back page of this book for the correct tyre pressures.

NOTE: If a worn tyre is underinflated by 2 bar, the ABS control is inoperative under extreme conditions! Also see 'Changing wheels' in chapter 'Emergency repairs' of this manual.

5.1.10 Brake system air dryer

The air dryer system can be checked for correct operation by inspecting the air reservoirs for condensed water.

1. Check the air reservoirs for condensed water by pulling on the rings of the drain valves.
2. Replace the air dryer element if more than the normal amount of water is drained off repeatedly. Consult a DAF Service dealer.

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NOTE: If the system pressure drops rapidly, the air dryer system cannot perform optimally. This pressure drop is caused by an air leak or by coupling up a trailer without air.
If the air dryer system supplies a large volume of air quickly, its air-drying function is not optimum. In this case, moisture might enter the air supply system.

5.1.11 Batteries

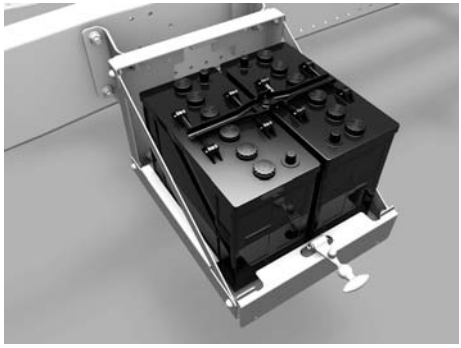
WARNING! Sparks and open flames in the vicinity of a battery can lead to an explosion with serious injury.
– ***Avoid sparks and open flames in the vicinity of batteries.***

WARNING! Battery acid is an aggressive and toxic fluid. Physical contact can lead to serious health problems.
– ***If there is skin contact: rinse the skin profusely with plenty of water.***
– ***Consult a doctor in the event of persistent redness or pain.***
– ***Take off polluted clothing and rinse in water.***
– ***If there is contact with the eyes: rinse with plenty of water for at least 15 minutes and consult a doctor.***
– ***If swallowed: do NOT induce vomiting. Rinse the mouth, drink two glasses of water and consult a doctor.***
– ***In the event of inhalation: get fresh air, rest and consult a doctor.***

CAUTION: The use of battery types other than those specified can cause damage to the electrical components.
– ***Do not use battery types other than those specified. See chapter 'Technical data'.***

CAUTION: Drawing power directly from the batteries can cause damage to the batteries and may lead to starting difficulties.
– ***Do not make any permanent direct connections to the batteries.***

– Check the electrolyte level; it must be approximately 10 mm above the plates or up to the level indicator, if present. If necessary, top up the batteries with distilled water.
– Check that the battery poles and terminals are clean and greased. If necessary, coat the poles with an acid-free petroleum jelly.



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5.2 MAINTENANCE

5.2.1 General maintenance

The durability, safety, trade-in value and reliability of the vehicle largely depend on the care you give it. This includes regular service according to the maintenance schedules specified by DAF.

The driving style and the care given to the vehicle directly influence the condition of the vehicle. The driver can often provide the dealer with information which is very important for correct maintenance.

Contact a DAF Service dealer prior to the service intervals and related activities.

5.2.2 Cabin maintenance

DAF pays considerable attention to the quality of surface and paint finishing. To keep this quality as high as possible during vehicle use, perform regular maintenance on the surfaces of the cabin.

To prevent the formation of rust in box sections and other cavities, DAF protects the cabin with corrosion-inhibiting products during production.

Due to the setting of the structure, minor bare spots may develop in this additional protective coating.
For this reason, DAF considers it necessary to have further treatment performed within a specific period after the vehicle has been taken into service. Consult the warranty manual.

If this does not happen, the warranty becomes invalid.
The relevant warranty conditions are listed in the warranty manual.

5.2.3 Cleaning

The appearance of the vehicle is your company's face to the world!

Cleaning the vehicle

Before the vehicle is cleaned, check for leaks from the engine, axles, gearbox and so on. This is no longer possible after cleaning the vehicle and performing maintenance work.

NOTE: The use of specialised vehicle cleaners is now prevalent within the industry. These cleaners have a wide range of high pH (alkaline) or caustic properties. If administered incorrectly, they can cause an irreversible effect on or damage to the vehicle and its systems.

Best practice while using vehicle cleaners:
- The compatibility of the substance with alkaline-sensitive surfaces must be tested before application. If in doubt, please refer to the supplier.
- Do not use cleaners in direct sunlight, specifically with high ambient temperatures and/or with a hot vehicle/body structure.
- Always spray the vehicle fully with clean water before applying correctly diluted cleaner.
- Make sure that the cleaner is diluted in the correct proportion as directed by the supplier.
- Apply the solution whilst maintaining an adequate clearance to the component being washed; DAF recommends a minimum clearance of 50 cm.
- Do not allow the cleaning solution to dry without rinsing with clean chemical-free water.

When a high-pressure cleaner is used, take special note of the following points:
- Make sure that the doors, windows and roof hatch are properly closed.
- Never spray directly on seals. There is a risk that they can be forced open, allowing water to penetrate and flush away the grease packed behind them. This may happen, for example, with the universal joint on the steering box. As a result, the spider may seize so that the steering jams.
- Do not spray directly onto steering ball joints.
- The power steering fluid reservoir is fitted with a vent. Water may enter the reservoir via this vent and damage the steering gear.
- When cleaning the radiator or intercooler, make sure not to damage the fins.
- Do not direct the high-pressure cleaner or steam cleaner jet at the air conditioning system condenser for too long. As a result of the high temperature, the pressure in the system will rise too high, which may damage the system. Parts of the air conditioning must not be cleaned with the aid of a high-pressure or steam cleaner as this can damage the seals.
- Make sure that no water can enter the differential and gearbox via the vents.
- Make sure that no water can enter via the reservoir bleed screws of the clutch, trailing axle and so on.
- The engine and engine compartment can be cleaned with a high-pressure or steam cleaner. Do not spray directly onto electrical components such as the fuel system components, electronic control units, starter motor, alternator, air conditioning compressor, headlights and so on. **Directly after the cleaning process, the engine must run (at idle or driving) for at least 15 minutes.**
- Carefully clean the engine encapsulation and its fittings. Remove any spilt oil and diesel oil to avoid the risk of fire.
- Do not aim the jet of water directly at electrical connectors.
- Do not aim the jet at the gear change lever unit.
- When cleaning the vehicle, make sure that no water can enter the air inlet system via the air inlet or its flexible seals.
- When the vehicle has been cleaned, lubricate it with a grease gun or via the automatic lubrication system. This is important because it prevents the penetration of moisture and dirt at the various pivot points.

Cleaning the cabin interior

The plastic panels can be cleaned with a household cleaning agent and warm water. The fabric trimming must be cleaned with a non-aggressive dry-cleaning agent or an equivalent product. Leather trimming must be cleaned with leather cleaning solution and treated with leather conditioner.

Master display

- Do not use alcohol-based cleaners or windscreen cleaners to clean the lens of the master display.
- Use a soft cotton or linen rag and clear or mild soapy water to clean the master display.

Seats and safety belts

- Dirt can impair the way in which the seat functions. It is therefore important to keep the seat clean! Do not remove the upholstery from the seat when cleaning the seat.
- When cleaning the upholstery, do not allow it to become soaked.
- Before using standard upholstery or plastic cleaning agents, test for compatibility on a small, concealed area.
- High-pressure cleaning equipment must not be used to clean the seat or safety belts.
- Clean the safety belts with an all-purpose cleaner, avoiding the use of caustic substances.

Cleaning the cabin exterior

The external paintwork of the cabin is subject to attack by corrosive substances, for example road salt, grit and polluted air.
The paintwork must therefore be cleaned regularly.

When cleaning the cabin, make sure that:

- No caustic cleaners are used.
- No hard brushes are used.
- All seams, gaps and door shut-lines are thoroughly cleaned.

It is advisable to clean the paintwork using DAF shampoo.

Cleaning the windscreen

Depending on the vehicle type, a cleansing rod with sponge and wiper for cleaning the windscreen may be present in the storage compartment.
Slide out the rod to the length needed and use the rod to clean the windscreen.

When cleaning the windscreen, make sure that:

- The windscreen wipers are removed from the windscreen.
- No hard brushes are used.
- Use the wiper to wipe the windscreen dry and improve visibility.

It is advisable to clean the windscreen using DAF shampoo.

Cleaning the head- and fog light lenses

Never use hard or sharp objects to clean the lenses of the head- and fog light. This can damage the UV coating of the lenses causing them to change colour.

Waxing the cabin

The paintwork of new vehicles is waxed to protect it against the elements.

After a time this wax coating wears as a result of cleaning and other external influences. To give corrosive substances less chance of attacking the paint, protect the paintwork with a new wax coating at least twice a year.

It is advisable to wax the cabin using DAF wax.

A DAF Service dealer can provide advice about additional anti-rust treatment and maintenance of the paintwork when the vehicle is in service.

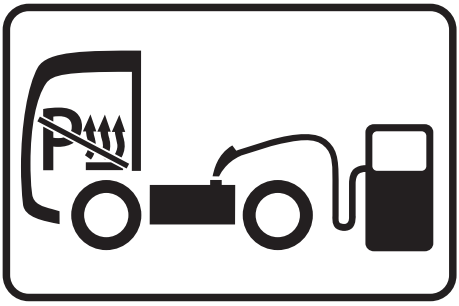
5.2.4 Auxiliary heater

If necessary, install a separate fuel tank for the auxiliary heater.

If the tank has been filled up with winter diesel, allow the auxiliary heater to run on the new fuel for half an hour. Make sure that all the old fuel is used up.

The above recommendations apply to both air and water heating and to all vehicle types.

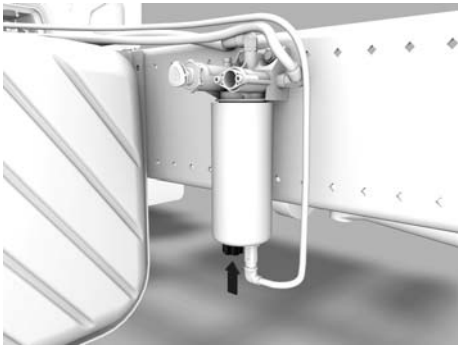
WARNING! Fuel fumes contacting a source of heat can cause an explosion and serious injury.
– Switch off the auxiliary heater when filling the tanks with fuel!



D001862

5.2.5 Draining the water from the fuel pre-filter and moisture separator

The fuel pre-filter and moisture separator is located on the back of the fuel tank or on the chassis member near the fuel tank.



D002067

WARNING! Diesel is a toxic fluid. Physical contact can lead to serious health problems.

- ***Avoid direct contact.***
- ***If there is skin contact: remove the substance with paper or a cloth, wash with soap and water. If the irritation persists, consult a doctor.***
- ***If there is contact with the eyes: rinse with plenty of water for at least 15 minutes and consult a doctor.***
- ***If swallowed: do NOT induce vomiting. Rinse the mouth, drink plenty of water and consult a doctor.***
- ***If inhaled: get some fresh air, rest and consult a doctor.***

WARNING! Fuel is highly flammable and can cause fire or an explosion resulting in serious injury.

- ***Collect the fuel that escapes.***
- ***Avoid sparks and open flames in the vicinity of fuel.***

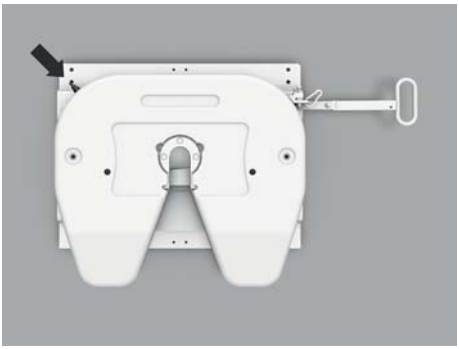
1. Place a container beneath the pre-filter and moisture separator.
2. Unscrew the drain plug on the bottom of the moisture separator a few turns.
3. Drain the filter until pure diesel fuel comes out of the drain plug.
4. Close the drain plug.
5. If it abuts, turn the drain plug another 1/8 - 1/4 turn.
6. Check the drain plug for leakage.
7. To prevent pollution, pass the drained water and diesel fuel mixture to the relevant authorities for reprocessing.

5.2.6 Lubricating fifth wheel or trailer coupling

Lubricating the fifth wheel

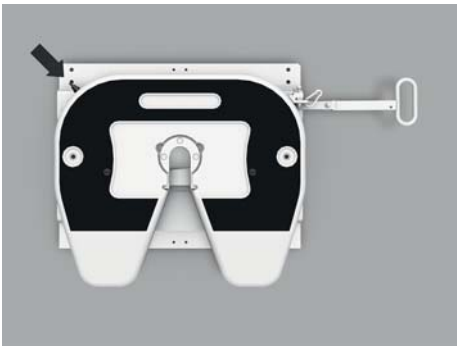
DAF uses various fifth wheels. The following directions for greasing apply in general to the fifth wheels supplied by DAF.

Standard fifth wheel
(every 5,000 km)
- Uncouple the semi-trailer.
- Clean the fifth wheel, the semi-trailer skid plate and king pin.
- Grease the fifth wheel top plate.
- Grease the semi-trailer skid plate and king pin lightly.
- Couple the semi-trailer and grease the grease nipple(s) with a grease gun.



D001692

Low maintenance fifth wheel (with Teflon top plate liners)
(every 10,000 km)
- Uncouple the semi-trailer.
- Clean the fifth wheel, the semi-trailer skid plate and king pin.
- Oil the Teflon top plate liners and semi-trailer skid plate **lightly.** A thin layer of oil prevents corrosion of the semi-trailer skid plate and ensures a long service life of the fifth wheel Teflon top plate liners.
- Couple the semi-trailer and grease the grease nipple(s) with a grease gun.



D001693

Lubricating the trailer coupling

Lubricate the trailer coupling every 5,000 km.

D002055

Coupling and uncoupling 6

6.1 FIFTH WHEEL

General

The fifth wheel is one of the vehicle components with particular importance for road safety. Please comply precisely with the manufacturer's operating, care and maintenance instructions.

Instructions for use for the fifth wheel are located on its handle when the truck is delivered from the factory. If the instructions for use are missing, follow these general guidelines until you have downloaded the manufacturer's operating, care and maintenance instructions.

Sites to download the manufacturer's operating, care and maintenance instructions from:

- JOST: www.jost-world.com
- Fontaine: www.fifthwheel-europe.com
- SAFHolland / GF / Eurohitch: www.safholland.com

DAF uses fifth wheels from several different manufacturers. The following guidelines apply in general to the fifth wheels supplied by DAF.

WARNING! If the fifth wheel is damaged, you can lose the semi-trailer. There is a risk of an accident. Always check that the fifth wheel is free of damage before coupling-up.

Coupling semi-trailer

- Be absolutely sure that the semi-trailer is braked and cannot roll away.
- Pull out the fifth wheel handle, as explained in the manufacturer's operating, care and maintenance instructions. The jaw is now opened and ready for coupling.
- Drive the tractor close to the semi-trailer and make sure that the coupling pin is in the middle of the V-shaped fifth wheel opening.
- The semi-trailer skid plate must be 20 mm to a maximum of 50 mm **lower** than the fifth wheel plate. If necessary, adjust the height of the semi-trailer or tractor.
- Reverse the tractor **slowly** until the semi-trailer is on the fifth wheel and the jaw is locked by the coupling pin. The fifth wheel handle then springs back into its original position.
- Connect the brake pipes and the cables for the lighting and ABS/EBS.

NOTE: When coupling, check the coupling head rubbers of the air pipes of both the tractor and the semi-trailer for possible damage.

- Check whether the fifth wheel is locked by **slowly** driving forward a short distance.

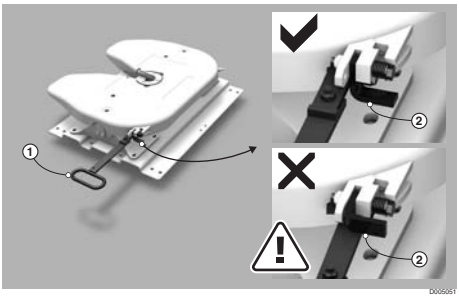
WARNING! If the fifth wheel is not correctly engaged, you can lose the semi-trailer. There is a risk of an accident. Always check that the fifth wheel is properly engaged after coupling-up.

– Lock the fifth wheel handle, as explained in the manufacturer's operating, care and maintenance instructions (see the examples of the different version used).
– Check that the semi-trailer is coupled to the fifth wheel without any air gaps and that the automatic locking has in fact taken place.
– Retract the semi-trailer supports.

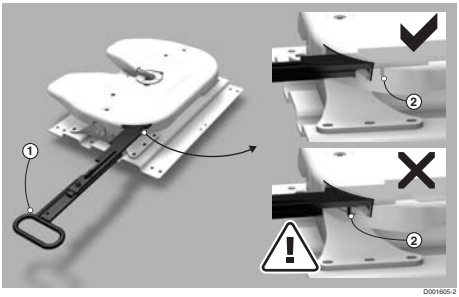
Examples of correct locked position from several different manufacturers.

NOTE: In all these examples (1) depicts the fifth wheel handle and (2) the location to check.
The checkmark depicts a properly closed fifth wheel and the cross with the warning triangle depicts the situation where the fifth wheel is not properly closed.

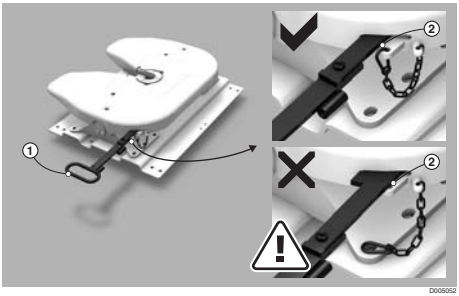
JOST (version 1)



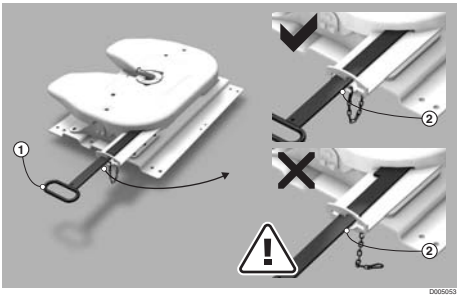
JOST (version 2)



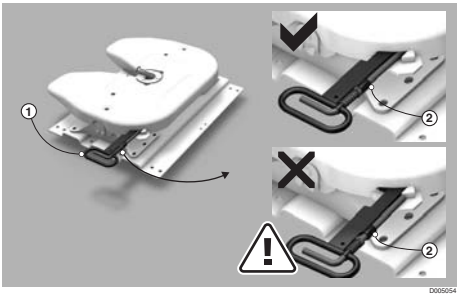
Fontaine (version 1)



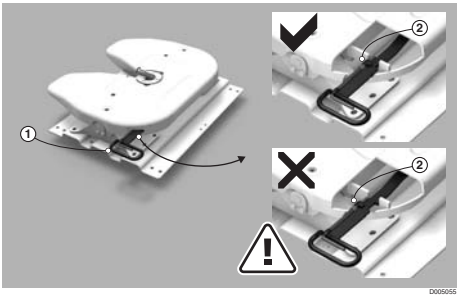
Fontaine (version 2)



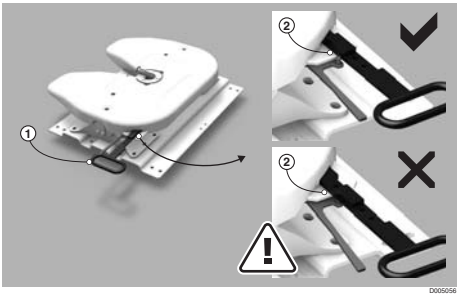
Fontaine (version 3)



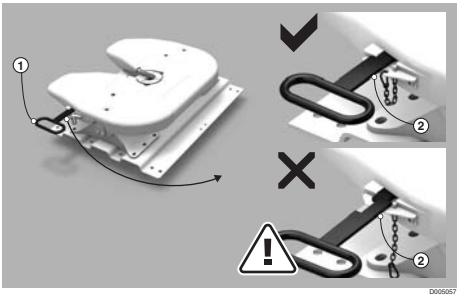
SAF (version 1)



SAF/GF (version 2)



SAF (version 3)



WARNING! If there is too much play on the tractor/semi-trailer combination between the semi-trailer coupling pin and the coupling plate, the semi-trailer may break away from the coupling plate. You can lose the semi-trailer as a result. There is a risk of an accident. Follow the coupling manufacturer's instructions.

Uncoupling semi-trailer

- Park the vehicle on flat and firm ground.
- Make absolutely sure that the semi-trailer is braked.
- Place wheel chocks in front of and behind the semi-trailer wheels.
- Wind down the semi-trailer supports using quick operation until the feet touch the ground. Switch to slow operation and wind down a few turns further. Do not lift the semi-trailer from the fifth wheel.
- Detach the brake pipes and cables for lighting and ABS/EBS.
- If fitted, detach the safety hook or padlock.
- Unlock the fifth wheel by pulling out the handle, as explained in the manufacturer's operating, care and maintenance instructions. The jaw is now opened and ready for uncoupling.
- Slowly drive the tractor from under the semi-trailer.

NOTE: On tractors with air suspension, the remote control of the air suspension is used for coupling and uncoupling the trailer. When coupling, the vehicle can be brought to the correct coupling height.

Important

After coupling or uncoupling a semi-trailer, always press the switch for normal driving height to automatically return to the correct **driving height**.

6.2 TRAILER COUPLING

General

The trailer coupling is one of the vehicle components with particular importance for road safety. Please comply precisely with the manufacturer's operating, care and maintenance instructions.

Instructions for use for the trailer coupling are located on the coupling when the truck is delivered from the factory. If the instructions for use are missing, contact a DAF Service dealer to get a new copy. Follow these general guidelines until you receive the manufacturer's operating, care and maintenance instructions.

DAF uses trailer couplings from several different manufacturers. The following guidelines apply in general to the trailer couplings supplied by DAF.

Coupling the trailer

WARNING! If the trailer coupling is damaged or not correctly engaged, you can lose the trailer. There is a risk of an accident. Always check that the trailer coupling is free of damage and properly engaged after coupling-up.

WARNING! If there is too much play on the truck/trailer combination between the trailer coupling pin and the trailer towbar, the trailer may break away. You can lose the trailer as a result. There is a risk of an accident. Follow the trailer coupling manufacturer's instructions.

6

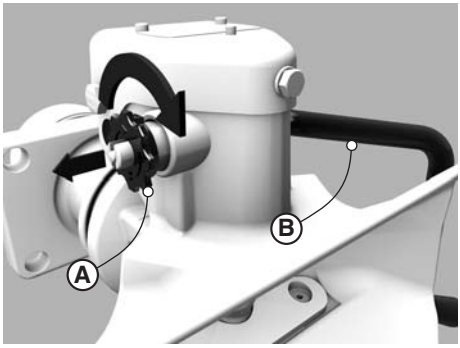
- Place wheel chocks in front of and behind the trailer's rigid axle wheels to prevent it from rolling away.
- Release the service brake of the trailer; see the manufacturer's operating instructions.

NOTE: The unbraked front axle of the trailer must remain pivotable.

- Set the towbar supports to the height of the trailer coupling. See the manufacturer's operating instructions.

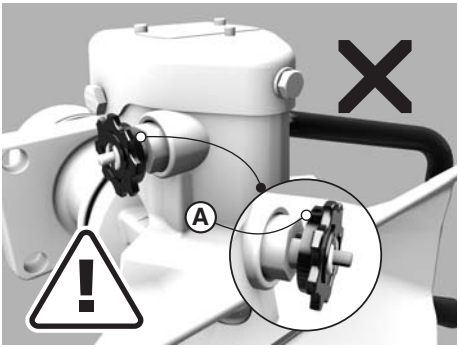
Trailer coupling with manual unlocking

- Pull the safety pawl (A) out of the coupling and rotate it 90°.
- Pull the lever (B) up. The coupling pin is now raised and ready for coupling.
- Reverse the truck **slowly** until the trailer coupling closes.
-



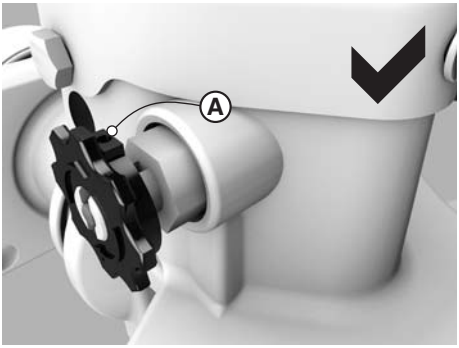
D001596-2

Safety pawl (A) unlocked: coupling unsafe!



D001597-2

Safety pawl (A) closed: coupling safe.



D001598-2

– After coupling, always check whether the safety pawl (A) is in the locked position. See the manufacturer's operating instructions

NOTE: If the safety pawl (A) is not locked, the coupling is not safe and you must couple the trailer again.

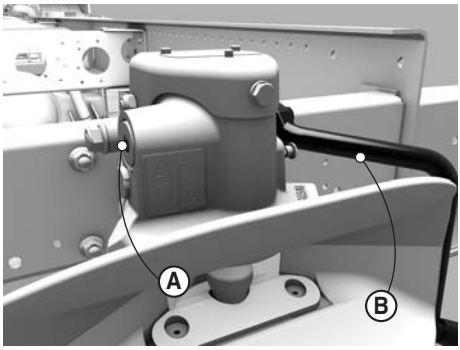
– Connect the brake pipes and the cables for the lighting and ABS/ EBS.

NOTE: When coupling, check the coupling head rubbers of the air pipes of both the truck and the trailer for possible damage.

–

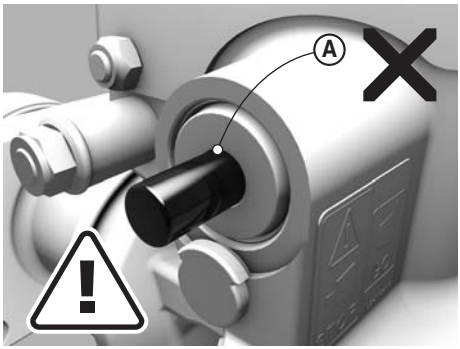
Trailer coupling with automatic unlocking

– Pull the lever (B) up; the locking indicator pin (A) shoots out. The coupling pin is now raised and ready for coupling.
– Reverse the truck **slowly** until the trailer coupling closes.



D001599

Locking indicator pin (A) in unlocked position: coupling unsafe!

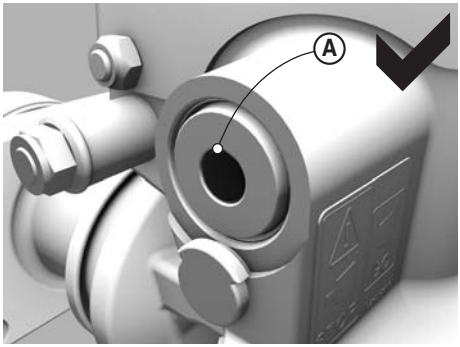


D001600-2

Locking indicator pin (A) fully level with the front: coupling safe.

– After coupling, always check whether the locking indicator pin (A) is in the locked position. See the manufacturer's operating instructions.

NOTE: If the locking indicator pin (A) is not fully level with the front, the coupling is not safe and you must couple the trailer again.



D001601-2

– Connect the brake pipes and the cables for the lighting and ABS/ EBS.

NOTE: When coupling, check the coupling head rubbers of the air pipes of

both the truck and the trailer for possible damage.

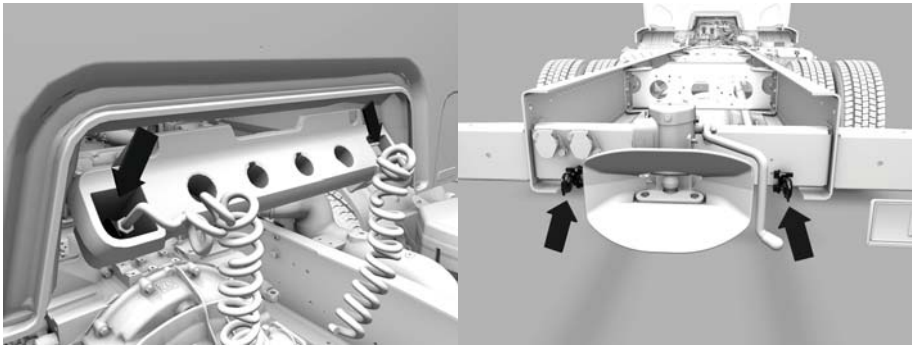
Uncoupling the trailer

– Park the vehicle on flat and firm ground.
– Make absolutely sure that the trailer is braked.
– Place wheel chocks in front of and behind the trailer's rigid axle wheels.
– Detach the brake pipes and cables for lighting and ABS/EBS.
– Pull up the lever (B) up in to its locked position. The trailer coupling can only be opened in the centre position or the two outer positions of the coupling jaw. (If the coupling jaw is crooked, the coupling pin cannot be unlocked!)

NOTE: Before lever (B) can be pulled up on trailer couplings with manual unlocking, the safety pawl (A) must be pulled from the coupling and turned 90°.

– Set the towbar supports to the height of the trailer coupling. See the manufacturer's operating instructions.
– Slowly drive the truck away from the trailer.

6.3 CONNECTING THE BRAKE PIPES



D002069

The vehicle has automatic coupling heads which are used to connect the brake pipes. Connect the brake pipes with these coupling heads. These coupling heads have safety lugs which make it impossible to connect the brake pipes incorrectly. The coupling heads on the (semi-) trailer must of course have corresponding safety lugs.
If a mistake is made while connecting the brake pipes, the air brakes on the (semi-) trailer do not release.

NOTE: When coupling, check the coupling head rubbers of the air pipes of both the truck and the (semi-) trailer for possible damage.

WARNING! Some types of (semi-) trailer do not brake automatically if the air reservoirs are empty. This makes it possible to drive away with an unbraked (semi-) trailer. This can lead to very dangerous situations.
- ***Connect the (semi-) trailer correctly***
- ***Make sure that the air reservoirs are filled before driving off.***
- ***Before starting a journey check if the (semi-) trailer brake operates.***

When the red coupling head is properly connected, the brake system of the (semi-) trailer starts filling. This can be noticed quite clearly. At the same time there is a marked drop in pressure in the air reservoirs of the towing vehicle. See chapter 'Brake system air dryer'.

- red = emergency line coupling head
- yellow = service line coupling head

WARNING! If the yellow and/or red brake pipes have not been connected, the (semi-) trailer cannot brake. This can lead to very dangerous situations.
- ***Always connect the yellow and red brake pipes correctly.***

6.4 CONNECTING THE ABS OR EBS CONNECTOR OF A (SEMI-) TRAILER

ABS: Anti-lock Braking System
EBS: Electronically controlled brake system

A (semi-) trailer with ABS is fitted with an anti-lock braking system.
A (semi-) trailer with EBS is fitted with an electronically controlled brake system, which incorporates ABS.

Both versions are connected to the extra socket of the ABS/EBS system on the truck with a special plug.
If this plug is not connected, a yellow warning will appear on the master display.

Consequences of **not** connecting a (semi-) trailer EBS to a truck EBS via the ABS/EBS plug:
- no load-dependent brake control;
- no ABS (depending on (semi-) trailer EBS system version);
- no EBS control;
- full brake action always maintained, regardless of load.

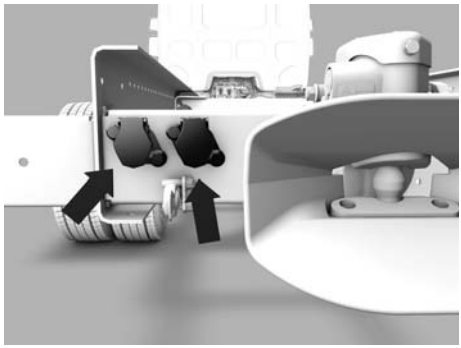
WARNING! Not connecting an EBS (semi-) trailer to an EBS truck via the ABS/EBS plug can result in a longer braking distance, unstable brake behaviour and unstable vehicle behaviour during critical driving situations. This can lead to very dangerous situations.
- ***Always connect the ABS/EBS plug.***

Overview of combination possibilities

	(semi-) trailer without ABS (correctly connected)	(semi-) trailer with ABS (correctly connected)	(semi-) trailer with EBS (correctly connected)	(semi-) trailer with EBS (5-pin ABS wiring harness connected instead of 7-pin EBS wiring harness)
Truck with EBS	– Load-dependent brake control (mechanical) active – No ABS control	– Load-dependent brake control (mechanical) active – ABS control active	– Load-dependent brake control (electrical) active – ABS control active – CAN communication	– Load-dependent brake control (electrical) active – ABS control active

6.5 CONNECTING THE TRAILED VEHICLE LIGHTS

A 7-pin socket is provided for connecting the lighting of the trailed vehicle. Furthermore, there is an additional 7-pin socket on the truck, which can be used for connecting accessories fitted on the trailed vehicle. The two sockets have different designs to rule out the possibility of making incorrect connections. If the trailed vehicle has a 24-V electrical system, it can be connected to the electrical system of the truck without having to take any special measures.



D001612

NOTE: Be aware of the maximum power drawn by the trailed vehicle lights. When the current is too high, there is a risk of blown fuses and possible loss of truck and/or trailed vehicle lighting.

6

Driving 7

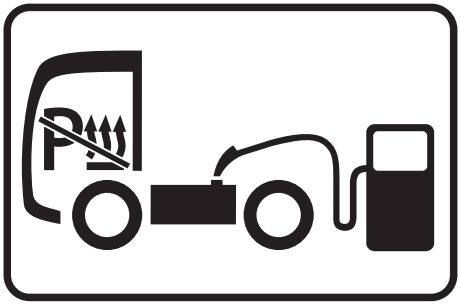
7.1 BEFORE A DRIVE

Before setting out on a drive, always perform the daily checks before starting the engine for the first time. See section 'Overview of daily checks' in the chapter 'Inspections and maintenance'.
Perform the weekly checks once a week. See section 'Overview of weekly checks' in the chapter 'Inspections and maintenance'.

7.2 REFUELLING DIESEL AND REFILLING ADBLUE

Diesel

WARNING! Fuel is highly flammable and can cause fire or an explosion resulting in serious injury.
- ***Avoid sparks and open flames in the vicinity of fuel.***
- ***Always clean spilled fuel.***
- ***Switch off the auxiliary heater when filling the tank with fuel.***



D001862

CAUTION: The use of incorrect or contaminated fuel can lead to serious damage to the fuel system and/or engine.
- ***Only use the specified fuel. See section 'Diesel fuel' in the chapter 'Technical data'.***
- ***It is prohibited to add petroleum (kerosene), petrol or any other additive to the diesel fuel.***
- ***Clean the vicinity of the fuel tank opening before opening it and filling up the tank.***
- ***Take care that nothing except clean fuel can enter the tank.***

The tank opening (A) for diesel is on the fuel tank.
Make sure that the tank is as full as possible to prevent condensation (especially in winter).

D002096

NOTE: When the vehicle is equipped with a dual fuel tank, the fuel tanks must be refuelled separately.

If outside temperatures are persistently low, only fill up with **winter diesel** produced by a reputable oil company. During the winter months, the oil companies often use additives to prevent blockages caused by the precipitation of paraffin crystals (wax deposits).

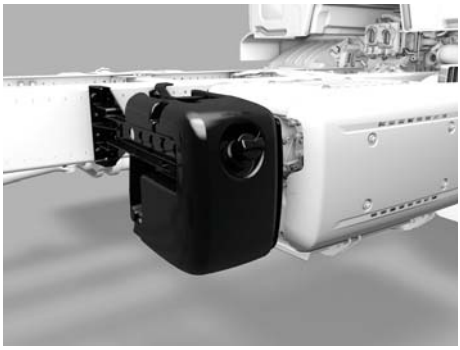
*NOTE: Additives which are used to prevent precipitation of paraffin crystals have a **purely preventative** effect. They cannot dissolve precipitated paraffin crystals.*
***Always** have a spare fuel fine filter in the vehicle! If it gets blocked in any way (for example, by paraffin crystals), the filter must be replaced to continue the drive.*

AdBlue

The EAS (Emission Aftertreatment System) consumes AdBlue. The AdBlue usage depends on:
– Vehicle configuration.
– Driving style.
– Load.
– Engine conditions (cold or warm).

CAUTION: The use of incorrect or contaminated AdBlue can lead to serious damage to the Emission Aftertreatment System (EAS).
– ***Only use the specified AdBlue. See section 'AdBlue' in the chapter 'Technical data'.***
– ***Clean the vicinity of the AdBlue tank opening before opening it and filling up the tank.***
– ***Take care that nothing except clean AdBlue can enter the tank.***

The tank opening for AdBlue is on the AdBlue tank, the filler cap for AdBlue has a blue colour. Having refuelled diesel, also fill up the AdBlue tank with AdBlue. Open the fender to get access to the filler opening.
Insert the dedicated AdBlue filler gun fully into the neck of the tank so that the magnet in the neck releases the AdBlue delivery. Filling up the AdBlue tank using a dedicated filler gun results in a maximum fill volume of 80%.



D002098

Under certain conditions during light-duty operation, little or no AdBlue may be used. In the absence of a warning symbol, it can be assumed that the system functions correctly.

NOTE: There remains a small quantity of AdBlue in the AdBlue tank, even if the level gauge indicates that it is empty.
Any spilled AdBlue can simply be removed with clean water. Dried AdBlue leaves a white deposit which can be removed with clean water as well.

NOTE: Not using AdBlue according to the vehicle's specifications to reduce pollutant emissions is a criminal offence and can invalidate the manufacturer's warranty.

The system warns of low AdBlue levels in four steps with post-warning indications as shown.
The texts and system reactions are as follows:

D001730

1. **'AdBlue level low'.**
   To avoid further warnings, refill the AdBlue tank.
2. **'AdBlue level very low'.**
   The warning indicator at the AdBlue gauge changes colour to yellow.
   To avoid further warnings, refill the AdBlue tank.
3. **'AdBlue level too low'.**
   The 'General' warning indicator comes on, and the engine power is reduced after a vehicle standstill.

To avoid further warnings and reset the engine power derate, refill the AdBlue tank.

4. **'AdBlue tank empty'.**
   In addition to the 'General' warning indicator, the 'MIL' warning indicator comes on, and, at the next key cycle, the vehicle speed limit is applied.
   If there is no key cycle for a period of eight hours, a warning is displayed. This warning informs the driver that the vehicle speed is limited starting at the next vehicle standstill.
   To avoid further warnings and reset the vehicle speed limit, refill the AdBlue tank.

The system also issues a post-warning indication for:

D001754-2

– **'Incorrect AdBlue'.**
  The 'MIL' and 'General' warning indicators come on, and, if ignored for ten hours, the engine power is reduced after a vehicle standstill.
  After 20 hours, the vehicle speed is also reduced at the next key cycle.
  If there is no key cycle for a period of eight hours, a warning is displayed. This warning informs the driver that the vehicle speed is limited starting at the next vehicle standstill.
– **'AdBlue dosing malfunction'.**
  The 'MIL' warning indicator comes on, and, if ignored for a period of time, the engine power is reduced after a vehicle standstill. Depending on the severity of the malfunction, this period of time varies between 10 and 36 hours.
  After 20 to 100 hours and depending on the severity of the malfunction, the vehicle speed is reduced at the next vehicle standstill.

NOTE: Both of these post-warning indications require assistance of a DAF dealer for cleaning or repairing the AdBlue system.

D001755

7

7.3 STARTING PROCEDURE

Glowing

If fitted, with the ignition on, the electronics of the engine automatically determine the necessary pre-glowing time. The necessary pre-glowing time depends on the ambient and engine temperatures.

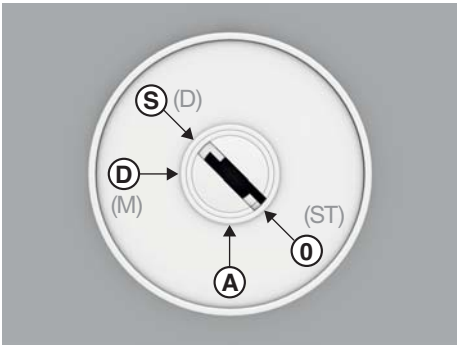
If the pre-glow function is activated, this warning indicator on the instrument panel lights up. Wait until this indicator is off before starting the engine.

NOTE: The electronics of the engine can also determine whether or not post-glowing is necessary. If this is the case, the glow warning indicator lights up for a certain time after the engine is started and running.

Starting

WARNING! Engine exhaust gases contain carbon monoxide, an invisible, odourless, but highly toxic gas. Inhalation of these gases may cause unconsciousness and death.

- ***When starting the engine inside a building, open the doors of the building fully to ensure adequate ventilation or connect an exhaust gas extractor.***



D001669

D002100

1. Apply the park brake.
2. Turn the ignition key to position D (M).
3. Wait until the master display has completed its start-up phase. See section 'Start-up phase' in the chapter 'Master display'.
4. Check and if possible correct all displayed system warnings.
5. Check the operation of the fuel level gauge and the coolant temperature gauge.
6. Check the engine oil level. See section 'Engine oil level' in the chapter 'Inspections and maintenance'.
7. Check if the gear change lever is in neutral or in case of an AS Tronic gearbox, turn the rotary switch to neutral (N).

NOTE: If the vehicle is equipped with a manual gearbox, depress the clutch pedal and put the gear change lever in neutral. Vehicles with manual gearboxes do not start when the gearbox is not in the neutral position.

NOTE: Vehicles with AS Tronic gearboxes do not start when the rotary switch is not in neutral (N).
*A flashing **N** appears in the master display and an acoustic signal is audible when the rotary switch is not in position **N** when starting.*
*If a **'-'** symbol appears in the master display, the system is not available and it is not possible to drive off. In this case, switch off the ignition for at least five seconds and switch it on again. If the **'-'** symbol still appears, contact a DAF Service dealer.*

8. Without pressing the accelerator pedal down, turn the ignition key to position S (D) until the engine starts. Release the key after 10 seconds if the engine does not start. Then wait 10 seconds and try again.

NOTE: If starting of the engine exceeds a certain period of time, the starter motor is deactivated. A system warning pops up on the master display. After a certain waiting period, it is possible to restart the engine.

NOTE: No oil pressure warning is visible on the master display. If the engine is running, the engine speed cannot be increased by pressing the accelerator pedal when the engine has no oil pressure.

D002099

NOTE: If Engine Speed Control is fitted as an option, one of various engine speeds can be selected with the steering wheel switch, if so desired.
The engine speed can also be increased with the right-hand steering column switch or the switch on the steering wheel.

When the engine is running, the daytime running lights turn on automatically (LEDs in headlights and rear lights, marker lighting). This function can be switched off for one key cycle (start - stop - start). Use the light switch to switch off this function. See section 'Instrument panel' in the chapter 'Instruments and controls'.

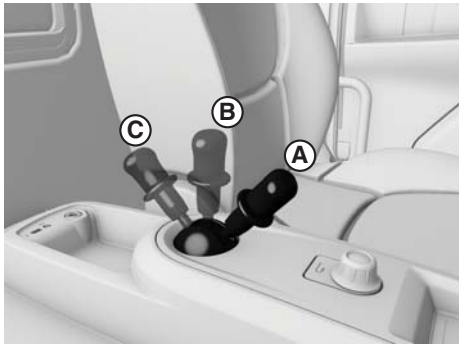
Before driving away, check that the central warning indicator is not on and that no red system warnings are active.

During cold ambient conditions, the engine may sound different after a cold engine start due to a different fuel injection strategy.

7.4 STOPPING PROCEDURE

Applying the park brake

Move the park brake handle (from position A) backwards past the locking cam (position B) when the vehicle is stationary. The park brake is now engaged.



D002106

WARNING! Not applying the park brake after parking the vehicle can cause the vehicle to move unintentionally. This can lead to serious injury and damage to the vehicle.

– ***Always apply the park brake after parking the vehicle.***

WARNING! If the park brake is released while the steering lock is still engaged, the vehicle cannot be steered. This can lead to serious injury and damage to the vehicle.

– ***Do not release the park brake while the steering lock is still engaged.***

Shifting the gearbox to neutral

Vehicle with manual gearbox

Shift the gear change lever to neutral when the vehicle is stationary.

Vehicle with automatic gearbox or AS Tronic Lite

WARNING! Leaving the vehicle with the engine running and a gear engaged, for any reason whatsoever, can result in the vehicle moving off without a driver. This may lead to dangerous situations resulting in serious injury, and damage to the vehicle.

– ***Never leave the vehicle when the engine is running and a gear is engaged.***

– ***Always set the gearbox selector or rotary knob to N (neutral) before leaving the vehicle.***

– ***Always apply the park brake before leaving the vehicle.***

Automatic gearbox

Select neutral (N) on the gearbox selector.

AS Tronic Lite

Turn the rotary knob to neutral (N).

D002100

WARNING! When the engine is switched off, the gearbox automatically shifts to neutral. If the service brake or park brake is not engaged, the vehicle can roll away. This can lead to serious injury and damage to the vehicle.

– ***Always apply the service brake or park brake when the engine is switched off.***

CAUTION: When a gear is engaged and the vehicle is at standstill, the clutch is open. In this situation, the clutch assembly can be damaged when stationary for long periods.

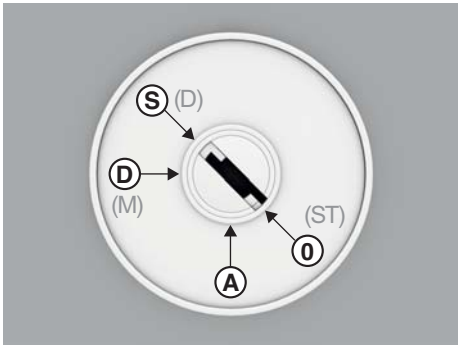
– ***When stationary for a long period, apply the park brake and set the rotary knob to neutral (N).***

Switching off the engine.

Make sure that the gearbox is in neutral.

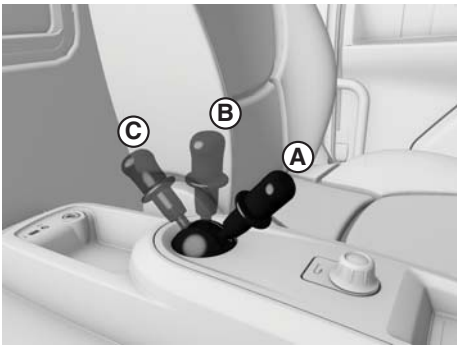
Before switching off the engine after a long trip or when the engine has been subjected to high loading, let it idle for at least 5 minutes. Let the engine run for a while to prevent the coolant temperature from becoming too high and to allow the turbo charger to cool down.

Switch off the engine by turning the ignition key to position 0 (rest position).



D001669

Parking



D002106

– The park brake is engaged when the park brake handle is past the locking cam (position B).
– When driving a vehicle combination, check whether the park brake handle can be moved even further backwards from position B against the pressure of the spring. Press in the park brake handle and pull it further back (to position C). This is the test position, the trailer brakes are not applied in this position. Check that the vehicle combination remains in place.
  If the vehicle combination does not remain in place in the test position, find a flatter place to park the vehicle. Always carry out this test if the vehicle is parked in unfavourable circumstances (gradient, slippery road surface, and so on). In this way, the combination remains safely parked, even if an air leakage can make the trailer brakes ineffective.
– Let the park brake spring back to position B.
– Place chocks in front of and behind the rear wheels.
– Angle the front wheels so that the vehicle does not move into the traffic stream if it is accidentally set in motion.

7.5 REGENERATING DPF, EMISSION AFTERTREATMENT SYSTEM

Introduction

To meet the Euro 6 emission requirements, the engine has Exhaust Gas Recirculation (EGR) and an Emission Aftertreatment System (EAS).
The EAS provides aftertreatment of exhaust gases to reduce exhaust gas emissions.

The EAS can be divided into two major systems:
– The DPF system
– The SCR system.

The DPF system

The DPF system is used to reduce the soot particles in the exhaust gases.
DPF is an abbreviation of Diesel Particulate Filter.

Exhaust gases enter the DPF system where the particulate filter traps soot from the engine exhaust gases.

The DPF is cleaned (regenerated) automatically. This regeneration of the DPF has three levels:
– Passive regeneration
– Active regeneration
– Forced stationary regeneration.

The three levels of regenerating the DPF

1. Passive regeneration.
   If the temperature of the exhaust system rises above a certain level during vehicle use, the soot is burned automatically in the DPF. This is a continuous automatic process, and no indication is shown on the master display.
2. Active regeneration.
   When the temperature in the exhaust system is too low for passive regeneration to occur, the system performs mobile active regeneration. To raise the temperature of the exhaust gases, extra fuel is injected into the exhaust and converted into heat in the DPF system. The EAS system initiates this process; it can occur at any time. Active regeneration starts and stops automatically, depending on vehicle conditions.
3. Forced stationary regeneration.
   If the vehicle is operated in such a way that active regeneration does not occur or is not completed, the DPF cannot be cleaned automatically. Examples of such situations include only driving short distances or driving with low engine loads. In these cases, the DPF may exceed the maximum soot level and four levels of system warnings are displayed. They advise the driver to conduct forced stationary regeneration. See section 'Master display notifications'.

NOTE: To prevent stationary regeneration, changing the driving conditions gives the vehicle a better chance of conducting mobile regeneration. See section 'Driving conditions for optimal DPF regenerations and fuel consumption reduction'.

CAUTION: During the first regeneration of the DPF, the Emission Aftertreatment System generates excessive smoke. This smoke disappears after some time and does not return with the next regenerations.
This smoke is not considered harmful.

Driving conditions for optimal DPF regenerations and fuel consumption reduction

Additional fuel is used during regeneration, so optimal regeneration and therefore reduction in fuel consumption are achieved during motorway driving.

Unfavourable driving conditions for regeneration are city driving and pick-up and delivery: more fuel is needed for regeneration under these conditions. Regular motorway driving is advised to achieve the optimal regeneration conditions and reduce fuel consumption.

How to stop regeneration

DPF regeneration may cause high exhaust gas temperatures. If there is a risk of fire or other hazardous situation, active DPF regeneration can be stopped or prevented by using the DPF switch in the vehicle.
Since active regeneration can occur at any time, the lower position ('off') of the DPF switch can be pressed any time you are driving into a hazard area where regeneration may be hazardous.

NOTE: Read the section 'Warning symbols on the master display' and follow the instructions.

WARNING! Never allow regeneration to start automatically while driving inside a building (a service bay or shop, for example). Any time you plan to drive the vehicle into a hazard area where regeneration can be dangerous, prevent regeneration from occurring by pressing the 'off' portion of the DPF switch. Hot exhaust gases produced during regeneration can ignite an explosion, cause a fire or harm bystanders and result in serious injuries.

NOTE: As soon as the hazardous situation is cleared, place the DPF switch on the control panel back in its neutral position. If you block regeneration, it remains blocked even after restarting the engine. This may result in rapid loading of the diesel particulate filter.
A pop-up screen showing the warning text 'Regeneration inhibit ' is shown on the master display. This happens every key cycle and with intervals as long as the switch is in the off position while the system tries to start a regeneration.

High Exhaust System Temperatures (HEST)

NOTE: During and shortly after a regeneration event, the gases exiting the exhaust system may reach high temperatures!

To make the driver aware of these high temperatures, the HEST (High Exhaust System Temperature) warning indicator lights up. The HEST warning indicator lights up as soon as a stationary regeneration is started. To prevent hazardous situations, the DPF switch can be used to stop regeneration.

Do not park in an area where people or combustible vapours and materials are less than 2 metres from the vehicle, and always park outdoors. Hot exhaust gases produced during regeneration can ignite an explosion, cause a fire or harm bystanders.

Severe over-temperatures

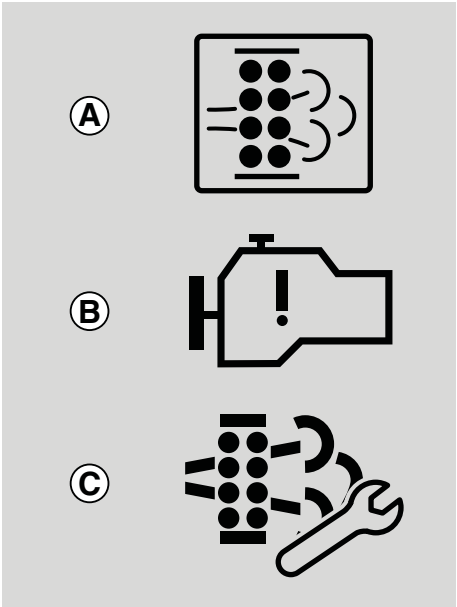
In the case of system malfunction, the EAS system can open a red pop-up screen showing the HEST warning symbol and the text 'Severe exhaust overheating' followed by 'STOP' and 'Switch off engine immediately' at vehicle standstill. When this pop-up appears, the vehicle must be parked in a safe location as soon as possible, and the engine must be stopped to prevent further damage to the Emission Aftertreatment System.

Warning symbols on the master display

To inform the driver about the functioning of the EAS, the following symbols can be shown on the master display:

– DPF warning symbol (A)
– Malfunction Indicator Lamp (MIL) (yellow) (B)
– DPF service symbol (red) (C)

See chapter 'Master display' for the exact location and layout of the warning symbols.



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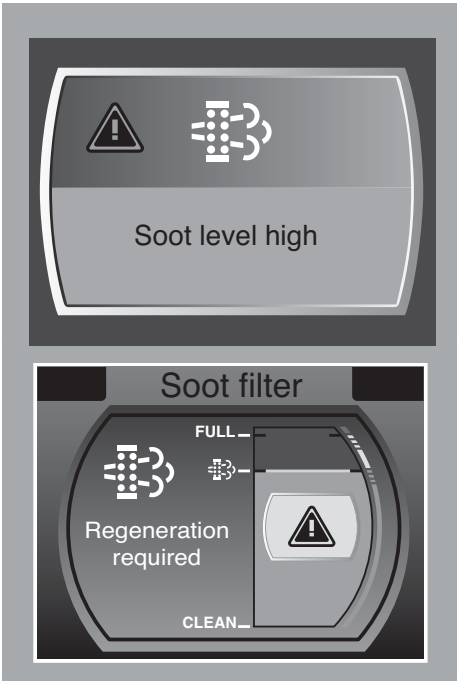
Master display notifications

If the soot level in the DPF exceeds a certain level, the master display shows notifications indicating that the DPF must be regenerated. As an example, the picture shows the screens of the first notification.
Warning symbols light up along with these notifications. The first three notifications are suppressed using the MCS. The warning symbols stay on after a notification is suppressed.



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Soot level high. Regeneration required.

First notification that a forced stationary regeneration is required.
A yellow pop-up screen showing the DPF warning symbol and the text 'Soot level high' is shown on the master display. This pop-up screen is followed by a post-warning indication showing the actual soot level with the text 'Regeneration required'.
Change your driving route, preferably to motorway driving, so that the vehicle can conduct an active regeneration, or initiate a forced stationary regeneration as soon as circumstances allow it. Follow the instructions described in section 'Initiating a forced stationary regeneration'.

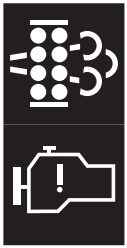
Soot level too high. Start regeneration immediately.

Second notification that a forced stationary regeneration is urgently required.
A yellow pop-up screen showing the DPF warning symbol and the text 'Soot level too high' is shown on the master display. This pop-up screen is followed by a post-warning indication showing the actual soot level with the text 'Start regeneration immediately'.

Change your driving route, preferably to motorway driving, so that the vehicle can conduct an active regeneration, or initiate a forced stationary regeneration as soon as circumstances allow it.
Follow the instructions described in section 'Initiating a forced stationary regeneration'.

CAUTION: If a forced stationary regeneration is not initiated as soon as safely possible when this notification is shown, a limited time is available before the next warning is displayed. Upon the third notification the engine will protect itself and derate power.

Soot filter full. Regeneration required now.



Progressive engine power derate applied up to 40%.
A yellow pop-up screen showing the DPF warning symbol and the text 'Soot filter full' is shown on the master display. This pop-up screen is followed by a post-warning indication showing the actual soot level with the text 'Regeneration required now'.
Active regeneration is no longer possible. Initiate a forced stationary regeneration as soon as circumstances allow it.
Follow the instructions described in section 'Initiating a forced stationary regeneration'.

CAUTION: If a forced stationary regeneration is not initiated as soon as safely possible when this notification is shown, a limited time is left before the soot level rises to the highest level. When the soot level reaches the highest level, an authorised Service dealer must service the vehicle. It is not possible to continue driving the vehicle.

Soot filter full. Service required.

On top of the progressive engine power derate up to 40%, the engine speed is limited to 1500 rpm.

A red pop-up screen showing the DPF warning with the service symbol and the text 'Soot filter full, service required' is shown on the master display. This pop-up screen is followed by a post-warning indication showing the actual soot level with the text 'Regeneration required now' and intermittently showing the red 'STOP' and 'Engine warning' symbols.
If you continue to drive the vehicle, the Emission Aftertreatment System will be permanently damaged! Stop the vehicle as safely as possible and stop the engine. At this point, you can no longer initiate a forced stationary regeneration. An authorised Service dealer must service the vehicle before it can be driven normally again.

Initiating a forced stationary regeneration

Carefully read the following instructions to initiate a forced stationary regeneration. If you have any problems or difficulties, contact the nearest Service dealer for assistance.

Engaging conditions for a forced stationary regeneration
- The EAS indicates that regeneration is required on the master display.
- Vehicle speed = 0 km/h (0 mph).
- Park brake is applied.
- Engine is running at idle.
- Engine brake is not active.
- Engine Speed Control is not active.
- Engine coolant temperature is at least 65 degrees.
- PTO is not enabled.
- Transmission is in neutral.

If the above conditions are met, a stationary regeneration can be initiated.

Disengaging conditions for a forced stationary regeneration
- Vehicle speed > 0 km/h (0 mph).
- Park brake is released.
- Ignition switched off with the ignition key.
- DPF switch on the control panel is in the 'off' position.
- Engine Speed Control is engaged.
- Engine brake is activated.
- Transmission shifted to a gear.
- Accelerator pedal is depressed more than 30%.
- Malfunction(s) in the engine ECU affecting the correct operation of the Emission Aftertreatment System.

If any of the above conditions are met, a stationary regeneration is disengaged.

WARNING! Never initiate a forced stationary regeneration in a closed building or enclosure, or in an area where people or combustible vapours and materials are less than 2 metres away from the vehicle. Always park the vehicle outside and away from all combustibles and bystanders, and make sure that no one is in the immediate vicinity. Failure to do so can cause an explosion, ignite a fire or harm bystanders and result in serious injury.

WARNING! Parking the vehicle too close to any combustible materials or vapours may cause an explosion, ignite a fire or harm someone standing close by. Before initiating the forced stationary regeneration, walk around the vehicle and make sure that there is at least 2 m (6.5 feet) clearance from the sides and top of the vehicle to any combustibles. Make sure that no one is in the immediate vicinity of the exhaust system. Hot exhaust gases which can occur during a stationary regeneration can cause an explosion, ignite a fire or lead to serious injury to you and/or bystanders.

NOTE: Typical operation areas or materials that can contain explosive vapours or flammable materials, or where there may be people in close proximity of the vehicle are:

- *Fuel depots.*
- *Grain elevators.*
- *Dry grass, leaves or trees.*
- *Waste transfer stations or dumps.*
- *Car parks.*
- *Loading and unloading terminals.*

How to initiate a stationary regeneration

NOTE: The driver of the vehicle is responsible for taking the necessary precautions, being aware of the surroundings and making sure that no combustibles (materials or vapours) or bystanders are close by before initiating forced stationary regeneration.

- Pull the vehicle over at a safe location.
- Get out of the cabin and walk all around the vehicle to make sure that you are at least 2 m (6.5 feet) away from all combustible materials and no one is in the immediate vicinity of the exhaust.
- Get back into the cabin.
- Press the upper portion of the 'regenerate DPF switch' (located on the control panel), follow the instructions on the post-warning indication and operate the switch for a second time to initiate a forced stationary regeneration event.
- Stay close to the vehicle as long as the regeneration is ongoing.

NOTE: During a forced stationary regeneration, engine rpm and noise increase.
The bar graph in the menu of the master display shows the forced stationary regeneration progress; see section 'Menu overview' in the chapter 'Master display'. On average it will take 45 to 60 minutes to complete a forced stationary regeneration. Please do not interrupt a stationary regeneration

NOTE: When the vehicle has been stationary with a running engine for a long period of time (overnight idling, for example), the system may open a pop-up for clean-up of the soot filter.

Soot filter contaminated. Regeneration required now

A yellow pop-up screen showing the DPF warning symbol and the text 'Soot filter contaminated' is shown in the master display. This pop-up screen is followed by a post-warning indication with the text 'Regeneration required now'.
Initiate a forced stationary regeneration as soon as safely possible.
Follow the instructions described in section 'Initiating a forced stationary regeneration'.
The forced stationary regeneration to clean up the soot filter will take on average 10 to 15 minutes. This type of forced regeneration must not be stopped by putting the 'regenerate DPF switch' (located on the control panel) in the 'OFF' position.

CAUTION: If the yellow pop-up of 'Soot filter contaminated' is ignored and the driver starts to drive away, the red 'STOP' and 'Engine warning' symbols will be shown. If you continue to drive the vehicle, the Emission Aftertreatment System will be permanently damaged! Stop the vehicle as safely as possible and initiate a forced stationary regeneration. The red warning will stop after forced stationary regeneration has finished.

The SCR system

The SCR system is used to reduce the level of nitrogen oxides in the exhaust gases. SCR is an abbreviation of Selective Catalytic Reduction. To reduce the level of nitrogen oxides in the exhaust gases, AdBlue is injected into the exhaust gases.
The EAS calculates the required amount of AdBlue to inject depending on several engine parameters and exhaust gas measurements, such as exhaust gas temperature, nitrogen oxide level and exhaust gas mass flow.

SCR tampering

As the use of AdBlue is important for SCR system operation, penalties are implemented to make sure that the AdBlue dosing system remains in good working condition.

These penalties consist of an engine derate and a vehicle speed limit. Both of these are initiated after a predefined period and triggered by:
– AdBlue consumption – level low/too low/tank empty.
– AdBlue quality.
– AdBlue dosing malfunction.

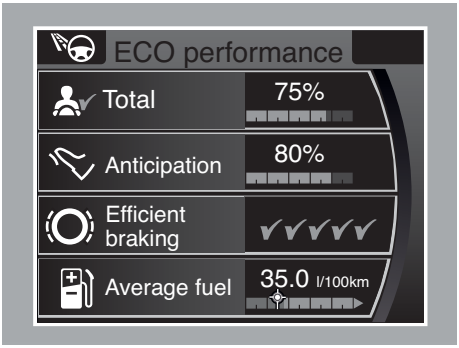
NOTE: Not using AdBlue according to the vehicle's specifications to reduce pollutant emissions is a criminal offence and can invalidate the manufacturer's warranty.

7.6 DRIVER PERFORMANCE ASSISTANT (DPA)

The driver performance assistant (DPA) is a feature made possible by all the electronic monitoring and guard functions of the vehicle. It can help the driver get an insight into how the vehicle is used.

It even makes it possible to improve driving performance by giving feedback on topics like anticipation, the use of the vehicle brake functions and fuel consumption.

The DPA is displayed on the master display of the DIP-5 via the screen 'ECO performance'. This screen is selected and activated using the Menu Control Switch (MCS). See sections 'Master display' and 'Menu Control Switch' in the chapter 'Master display'. Once selected the display shows four graphs. 'Anticipation' and 'Efficient wear' show the actual score as a percentage.
This score is measured during what are called events.



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- An anticipation event is registered as an event whenever the vehicle coasting speed decreases by at least 5 km/h.
- A braking event (Efficient wear) is registered as an event whenever the vehicle speed decreases by at least 10 km/h, including some element of braking under foot.
- In both cases, the starting speed must be above 40 km/h.

If an event is registered, the system provides feedback by showing a number of check marks. These check marks are shown in the graphs followed by a screen message. The number of check marks and the text of the screen message depend on how well the actions were performed.

The average of these two scores is shown as a percentage in the top graph marked 'Total'. The figures of this top graph are also shown in the bottom of the master display when the DPA screen is not activated via the MCS.

The bottom graph shows the 'Average fuel' consumption. This figure is not used to calculate the score on the top graph. It is possible to add a target value to the fuel consumption graph. This target is set in the menu 'Eco settings' which can be selected using the MCS.
The feedback given on the 'Average fuel' consumption graph consists of a colour change of the graph. Green when the average is below and red when the average is over target.

In addition the DPA provides tips on how to improve vehicle handling. These tips are presented in the form of screen messages. The text of such a message depends on how the vehicle is handled over a given period of time.

D001594

To switch off the DPA, including the screen messages and the graph in the master display, the screen 'ECO settings' must be selected via the MCS. Select 'Coaching' by turning the MCS, then push on the MCS to open the option 'on/off'. By selecting 'off' in this screen, the DPA feedback can be switched off as long as the vehicle ignition stays on. When the ignition is switched off and on again, the DPA feedback is again active.

7.7 FUEL CONSUMPTION DISPLAY

To become more conscious of the relationship between driving style and fuel consumption, relevant information about the fuel consumption and vehicle usage is displayed in the 'Driving support' menu on the master display. A fuel consumption target can be set to help improve the fuel economy. The fuel consumption display consists of two screens:

– Fuel consumption screen.
  This screen is part of the submenu 'Economic driving'.
– Trip info screen
  This screen is part of the main menu on the master display.

NOTE: For more information about improving fuel economy without sacrificing vehicle performance, see the section 'Driving style'.

Fuel consumption screen

Activation of the fuel consumption screen

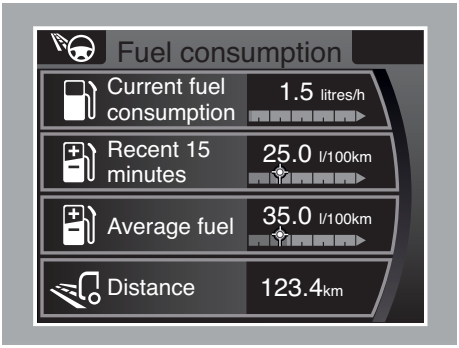
The fuel consumption screen is activated from the 'Driving support' menu using the Menu Control Switch.

Deactivation of the fuel consumption screen

The fuel consumption screen is deactivated when the Menu Control Switch is pressed.

Information on the fuel consumption screen

This menu can be activated during driving and displays the following information:



D001666

– **Current fuel consumption**
This is the actual fuel consumption displayed in litres per 100 km. This value can vary a lot and is highly dependent on the instantaneous load of the engine.
When the vehicle is at standstill, the fuel consumption is displayed in litres per hour.
– **Recent 15 minutes**
The average fuel consumption over the last 15 minutes is displayed in litres per 100 km. This value displays a quick result of how the driving style influences the fuel consumption.
After every time the ignition is switched on, **'--.-'** is displayed until a reliable value is calculated by the electronics of the vehicle. This can take a short while depending on the load of the engine.
– **Average fuel**
The average fuel consumption over this driving style event (DPA event) is displayed in litres per 100 km.

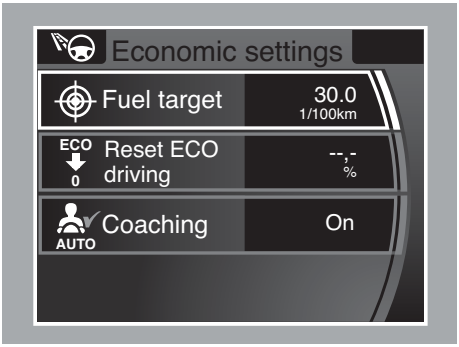
NOTE: A driving style event is not only the current drive. It is the total distance travelled since the last reset of the driver performance assistant. See section 'Driver Performance Assistant'.
The average lifespan fuel consumption of the vehicle can be read out in the 'Service info' menu on the master display (see 'Menu overview' in the chapter 'Master display').

NOTE: A fuel target can be projected on the average fuel graph. The fuel consumption target is displayed in litres per 100 km. This target can be set in the menu of the master display. Use the target to improve the fuel economy.
See 'Setting the fuel consumption target'.

When the event info has been reset, the average fuel displays **'--.-'** for the first 5 km.
The event info can be reset in the menu 'Eco settings'.
– **Distance**
The total distance over this event is given in km.

Setting the fuel consumption target

The fuel consumption target can be adjusted in the 'ECO settings' menu of the master display. See 'Menu overview' in the chapter 'Master display'.
By turning the Menu Control Switch, the target can be altered. When the vehicle is first taken into service or if the vehicle's settings have been changed by a DAF dealer, it is possible that the target will display **'--.-'**. In this case, the target needs to be set again.



D001678-2

Trip info screen

Activation of the trip info screen

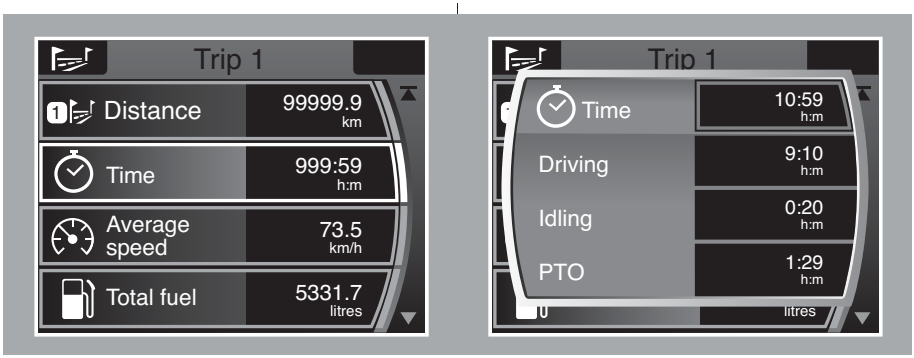
The trip info screen is activated from the menu using the Menu Control Switch.

Deactivation of the trip info screen

The trip info screen is deactivated when the Menu Control Switch is pressed.

Information on the trip info screen

NOTE: The trip info screen displays information about the trip. A trip is not only the current drive. A trip is the total distance travelled since the last reset.



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– **Distance**
  This is the total trip distance travelled displayed in km.
– **Time**
  The time displayed is the total trip time. The trip timer starts counting as soon as the engine is running.

By pushing the Menu Control Switch with this option selected, a menu with details opens showing;

- **Driving**
  This is the amount of time during the trip that has been used for driving (vehicle not at standstill) when the PTO (if present) is not engaged.
- **Idling**
  This is the amount of time during the trip when the vehicle is not driving (vehicle at standstill) but the engine is running and the PTO (if present) is not engaged.
- **PTO**
  This is the amount of time during the trip with the PTO (if present) engaged, both during driving and when the vehicle is at standstill.

– **Average speed**
This is the average vehicle speed during the trip.

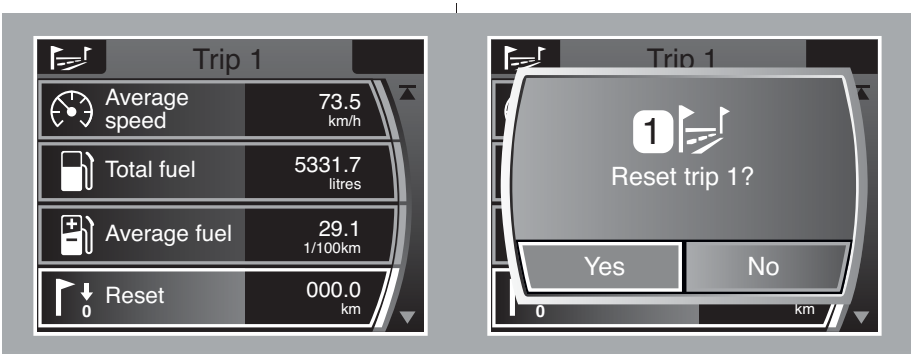
– **Total Fuel**
This is total trip fuel consumption by the engine displayed in litres.

NOTE: The real amount of fuel consumed can differ from the displayed fuel consumption because of factors such as:
- *the presence of external fuel consumers such as an auxiliary heater*
- *changes in ambient temperature*
- *the fuel consumption displayed is a calculated value*

- **Driving**
  This is the amount of fuel used during the trip that has been used for driving (vehicle not at standstill) when the PTO (if present) is not engaged.
- **Idling**
  This is the amount of fuel used during the trip when the vehicle is not driving (vehicle at standstill) but the engine is running and the PTO (if present) is not engaged.
- **PTO**
  This is the amount of fuel used during the trip with the PTO (if present) engaged, both during driving and when the vehicle is at standstill.

– **Average fuel**
This is the average fuel consumption of the trip displayed in litres per 100 km.

*NOTE: When the trip info has been reset, the **Average trip** displays **'--.-'** for the first 5 km.*



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NOTE: The trip info can be reset using the reset option in the trip info menu.

Automatic trip info reset

The trip info will be reset automatically when:
- the total trip distance exceeds 9999 km (**'Distance'**), or
- the total trip fuel consumption exceeds 9999 litres (**'Fuel consumption'**), or
- the total trip time exceeds 99:59 hours:minutes (**'Time'**)

NOTE: Although it is not advised, the automatic display setting of the fuel consumption display can be disabled by a DAF Service dealer.

7.8 ENGINE IDLE SHUTDOWN

If the vehicle is equipped with engine idle shutdown the engine is automatically switched off after five minutes of engine idling. A timer in the electronics of the engine counts the time. The **'Engine shutdown'** warning is displayed on the master display 30 seconds before the engine is switched off.

NOTE: If the engine is shut down the ignition is still switched on.

Activation conditions:

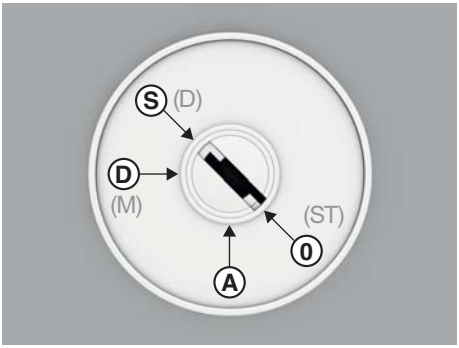
The engine electronics switches off the engine after five minutes of idling when all of the following conditions are met:
- the vehicle is at standstill.
- the park brake is applied.
- the accelerator pedal is not operated.

– the brake pedal is not applied.
– the clutch pedal is not applied.
– the Engine Speed Control is not active.

If any of the above-mentioned statuses change, the engine electronics stops counting and resets the timer. As soon as the conditions are met again, the engine electronics resumes counting.

Restarting the engine

First turn the key fully back to the position 0 (St). Then restart the engine.



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7.9 ENGINE SPEED CONTROL

Engaging and disengaging conditions for Engine Speed Control

Engaging Engine Speed Control

Engine Speed Control can be engaged when:
– Park brake applied.
– Clutch pedal not operated (not applicable for AS Tronic).
– Brake pedal not operated.
– Vehicle speed.
– Accelerator pedal position.
– Engine speed.

Disengaging Engine Speed Control

Engine Speed Control is disengaged when:
– The park brake is released.
– AS Tronic gearbox is switched from neutral (N) to a gear.
– The clutch is operated (not applicable for AS Tronic).
– The brake pedal is operated.
– The vehicle speed is too high.
– PTO speed control is active via the superstructure.

NOTE: If one or more of the above conditions are met, it is not possible to engage the Engine Speed Control.

Accelerator pedal function during Engine Speed Control

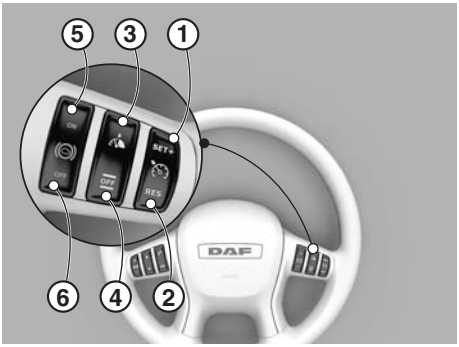
When the Engine Speed Control is active, the engine speed can be increased above the control speed using the accelerator pedal. When the accelerator pedal is released, the engine speed returns to the last valid control speed.

A DAF Service dealer can modify these conditions to meet the customer's requirements.

Control by steering wheel switches

Engaging the Engine Speed Control

Press switch (3) to engage the engine speed at the programmed value. There are two programmed engine speeds available. It is possible to toggle between the two programmed values by pressing switch (3). The programmed values can be changed within specific limits by a DAF Service dealer according to the customer's requirements.



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Altering the Engine Speed Control

Briefly press switch (1) to increase the engine speed or switch (2) to decrease the engine speed in small increments.
Hold down switch (1) to gradually increase the engine speed and hold down switch (2) to gradually decrease the engine speed. After briefly pressing or holding down the switch, the current engine speed is set as the new value.
The programmed minimum and maximum values in the electronics limit the engine speeds that can be set. These values can be modified within specific limits by a DAF Service dealer.

Disengaging the Engine Speed Control

Press switch (4) to disengage the Engine Speed Control. If one or more of the disengaging conditions are met, the Engine Speed Control is also disengaged.

7.10 CRUISE CONTROL

The cruise control can be used to drive at a constant speed. The desired driving speed is set, and the electronics maintain this speed. The driver can override the cruise control at any time by depressing the accelerator pedal or by applying the brakes.

Engaging and disengaging conditions for the cruise control

Engaging conditions

The cruise control can be engaged when all of the following conditions are fulfilled:
- The engine is running.
- The vehicle speed exceeds 30 km/h (18 mph) (ex-factory).
- No braking functions are active.
- Variable speed limiter is not active.
- Vehicle Stability Control (VSC) is not active.
- Anti Slip Regulation (ASR) is not active.
- The clutch pedal is not operated or the automatic gearbox is not set to neutral gear.

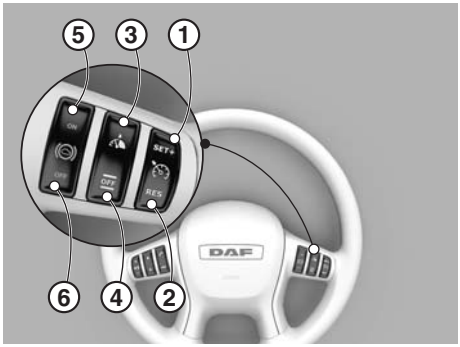
Disengaging conditions

The cruise control is disengaged by any of the following conditions:
- Engine is not running.
- The vehicle speed falls below 25 km/h (16 mph) (ex-factory).
- The park brake or brake pedal is operated.
- Steering wheel switch OFF is operated.
- Variable speed limiter is active.
- Vehicle Stability Control (VSC) is active.
- Anti Slip Regulation (ASR) is active for 3 seconds.
- The clutch pedal is operated or the automatic gearbox is set to neutral gear, unless a gear shift is executed within 5 seconds.

NOTE: A DAF Service dealer can change the vehicle speed settings for activation and/or deactivation of the cruise control to the customer's requirements.

Control by using the steering wheel switches

Engaging the cruise control



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Engage the cruise control by briefly pressing switch (1).
The current vehicle speed is set as the cruise speed which is shown in the master display. The setting disappears from the master display after three seconds, but remains visible in the speedometer display of the instrument panel. The settings

disappear from the speedometer as soon as the cruise control is disengaged.

Altering the cruise control speed

Briefly press switch (1) to increase the vehicle speed or switch (2) to decrease the vehicle speed in small increments.
Hold down switch (1) to increase the vehicle speed or switch (2) to decrease the vehicle speed. After briefly pressing or holding down the switch, the current vehicle speed is set as the new cruise control speed value.
Values programmed in the electronic control unit determine the minimum and maximum adjustable speeds.

NOTE: Altering the cruise control speed using the steering wheel switches will not work as long as the accelerator pedal is operated.

Accelerator pedal function during cruise control

When the cruise control is active, the vehicle speed can be increased using the accelerator pedal. When the accelerator pedal is released, the vehicle speed returns to the last valid cruise control speed.
When the vehicle speed is increased with the accelerator pedal above the cruise speed for longer than 3 minutes, the cruise control function is disengaged.

Disengaging the cruise control

Press switch (4) to disengage the cruise control. The speedometer of the instrument panel no longer shows the set speed.

NOTE: Cruise control does not deactivate when the downhill speed control is active.

Re-engaging the cruise control (resume)

When the cruise control is disengaged, press switch (2) to re-engage the cruise control. If the engaging conditions are met, the cruise control is re-engaged at the last set speed. If the current vehicle speed is less than the last set speed, the vehicle accelerates to the programmed set speed.

NOTE: When re-engaging the cruise control bring the vehicle back to cruising speed using the accelerator pedal first before pressing switch (2).

NOTE: If the vehicle ignition has been switched off, the set speed is erased.

Using the cruise control

If properly used the cruise control has a positive influence on fuel economy. Use the cruise control as soon as it is possible to drive for a longer period at a constant speed. It is advisable **not** to use the cruise control when driving in urban areas.

NOTE: Using the cruise control incorrectly can lead to increased fuel consumption.

7.11 VARIABLE SPEED LIMITER

The variable speed limiter allows the vehicle speed to be limited to a speed set by the driver.

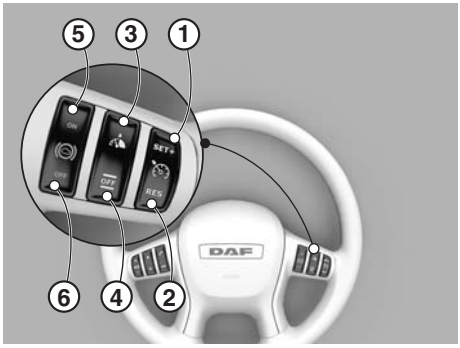
The variable speed limiter can be activated once the vehicle speed is higher than 36 km/h.

NOTE: When the variable speed limiter is engaged, the cruise control function is deactivated.

Control by steering wheel switches

Engaging the variable speed limiter

By pressing switch (3), the current vehicle speed is stored in the electronics as the required vehicle speed control value. This speed is shown in the master display while the variable speed limiter function is active.



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Altering the variable speed limiter

Briefly press switch (1) to increase the vehicle speed or switch (2) to decrease the vehicle speed in small increments.
Hold down switch (1) to increase the vehicle speed gradually and hold down switch (2) to decrease the vehicle speed gradually. After briefly pressing or holding down the switch, the current vehicle speed is set as the new value.

Disengaging the variable speed limiter

The variable speed limiter is disengaged when:
– The switch (4) is pressed.

– The accelerator pedal is temporarily fully depressed, whereby the kick-down switch in the accelerator pedal sensor is operated. For instance, to enable a passing or dodging manoeuvre.

NOTE: The vehicle speed limiting function is activated again when the vehicle speed falls below the variable speed limit saved last. This speed is shown in the master display while the variable speed limiter function is active.

7.12 DIFFERENTIAL LOCK

The rear axle can optionally be equipped with a differential lock which can be activated from the cabin.

Directions for use

CAUTION: Engaging the differential lock while there is wheel slip on one of the axles can lead to damage to the differential and/or differential lock.

– ***Never engage the differential lock while there is wheel slip. Always wait until the wheel has stopped spinning before engaging the differential lock.***

CAUTION: Driving on firm ground with the differential lock engaged can lead to damage to the differential and/or axle shafts.

– ***Disengage the differential lock as soon as firm ground is reached. If the warning lamp stays on, drive forward and then reverse a short distance to release the locking mechanism.***

A differential lock may only be used when driving on **soft ground** or on a **slippery road surface**, and never on firm ground.

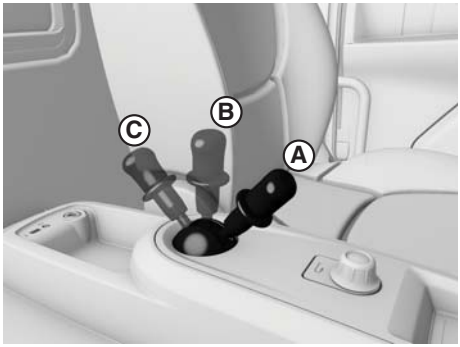
The differential lock can be engaged:
– with the vehicle stationary.
– with the clutch pedal depressed.
– with the gearbox in Neutral (N) position in case of vehicles with an automatic/AS Tronic Lite gearbox.

7.13 BRAKES

Park brake and service brake

WARNING! Not applying the park brake after parking the vehicle can cause the vehicle to move unintentionally. This can lead to serious injury and damage to the vehicle.

– ***Always apply the park brake after parking the vehicle.***



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NOTE: The vehicle is equipped with a park brake warning system. If the driver's door is opened while the engine has been switched off and the park brake has not been applied, an acoustic signal is given and a warning symbol is shown on the instrument panel.

WARNING! If the park brake is released while the steering lock is still engaged, the vehicle cannot be steered when rolling off. This can lead to serious injury and damage to the vehicle.

– ***Do not release the park brake while the steering lock is still engaged.***

WARNING! Engaging the park brake when driving on a slippery road surface may cause the engine to stall. Any emergency steering mechanism can then no longer be used. This can lead to unstable vehicle behaviour resulting in very dangerous situations.

– ***Do not apply the park brake when driving on a slippery road surface.***
– ***While driving, the park brake may only be used as an emergency brake.***

The service brake is operated by the brake pedal. If the service brake fails to operate owing to insufficient air pressure, the park brake can be used as an emergency brake. Moving the park brake handle slowly backwards as far as the stop will gradually brake the vehicle or combination in a controlled manner.
The park brake is engaged by moving the park brake handle back past the locking cam. On a vehicle with a trailer connection, the park brake has a test position. See section 'Stopping procedure'. The park brake is disengaged by lifting up the lock against the spring pressure and letting the park brake handle move forward.

The vehicle has an EBS brake system. The EBS system is an electronically controlled brake system that comes integrated as standard with:
– Anti-lock Brake System (ABS)

- Brake assist
- Anti-Slip Regulation (ASR).
- Vehicle Stability Control (VSC).

and depending on the vehicle configuration:
- Brake performance monitoring via the Driver Performance Assistant.
- Third brake integration.
- Hill Start Aid.

WARNING! If the warning symbol 'EBS fault' is activated, there is a fault in the EBS system of the truck or trailer. Ignoring this warning may lead to a reduced braking power and a longer braking distance. This can lead to very dangerous situations.
- ***Contact the nearest DAF Service dealer as soon as possible if this warning occurs.***

WARNING! If there is a fault in the EBS system, the pneumatic back-up system may be activated. The brake pedal force and travel required to brake the vehicle may increase. The ABS function may be deactivated.

EBS warning symbol in master display

There is an EBS warning symbol in the master display.
For the function of the warning symbol, see chapter 'Master display'.

ABS control

The ABS control is an anti-lock braking control.

The ABS ensures good braking stability and good steering in critical braking situations. By preventing the wheels from locking, the steering characteristics of the vehicle are retained.
When only one unit is equipped with ABS control, the directional stability and steering characteristics are not as good as when both units are equipped with ABS.

WARNING! ABS control does not release the driver from the obligation to adapt the driving style to the traffic and road surface conditions. The anti-lock protection cannot offset the results of driving too close to the vehicle in front or taking a bend at too high a speed. Occasionally, but not always, the braking distance is shorter with ABS control. Ignoring these matters can lead to very dangerous situations not only for the driver but also for other road users.
- ***Do not adapt your driving style to the knowledge of having ABS control.***
- ***Do not brake later and harder. This only causes unnecessary tyre wear. It may also be extra hazardous for other road users.***

ABS warning symbol on the instrument panel

WARNING! If there is a fault in the ABS system, ABS control disengages automatically. Ignoring this warning may lead to a longer braking distance, unstable brake behaviour and unstable vehicle behaviour during critical driving situations. This can lead to very dangerous situations.

– ***Follow the instructions mentioned in section 'Warning indicators on instrument panel' of chapter 'Master display'.***

ABS truck warning symbol on the instrument panel

If an ABS warning symbol on the instrument panel remains illuminated while driving, the ABS system of the truck is partly or completely deactivated and the brake system of the truck works as if no ABS were present. The wheels may then lock upon braking.

ABS trailer warning symbol on the instrument panel

If an ABS warning symbol on the instrument panel remains illuminated while driving, the ABS system of the trailer is partly or completely deactivated and the brake system of the trailer works as if no ABS were present. The wheels may then lock upon braking.

Brake assist

Brake assist operates in emergency situations. If the brake pedal is rapidly depressed, the EBS system will increase the brake pressure to a higher level.

Brake performance monitoring

During braking, the EBS system checks the brake performance of the vehicle or vehicle combination.

If the vehicle or vehicle combination does not have the normal brake performance, the **'Low brake performance'** warning is shown on the master display.

Reduced brake performance can be caused by defective brakes, for example worn-out disk brakes or overheated drum brakes. It can also be caused by severe overloads of the vehicle or vehicle combination.

The warning remains active until the EBS system has determined that the normal brake performance has returned.
When the 'Low brake performance' warning is active, you may not be able to brake as hard as you might otherwise expect. Adapt your driving style and drive cautiously. Brake using the engine brake and/or the retarder as much as possible. If the message cannot be logically explained from the loading situation or earlier braking behaviour, get the brake system checked as soon as possible.

Third brake integration

If the vehicle is fitted with a retarder or engine brake, third brake integration is automatically available in the EBS system. The EBS system can use braking torque support from the retarder or engine brake when the service brake is applied. This has a positive effect on the service life of the brake linings.

Hill Start Aid

If the vehicle is equipped with an AS Tronic gearbox, it also has Hill Start Aid. Hill Start Aid can be used when driving off on a hill, without having to use the park brake. See section 'Hill Start Aid'.

7.14 ENGINE BRAKE

The engine brake is an exhaust brake.

The engine brake is primarily intended for prolonged braking, for example when decelerating from high speed on a level road or when driving downhill. This reduces service brake wear.

The engine brake has the **greatest braking performance** in the **blue area** of the rev counter. The braking performance decreases as the engine speed falls.

CAUTION: Exceeding the permitted engine speed may seriously damage the engine.
– Do not operate the engine in the red area of the rev counter.

Vehicle with manual gearbox

When using the engine brake, adjust the gear selection so that the engine speed remains in the blue area of the rev counter.
The braking performance decreases as the engine speed falls.

Vehicle with AS Tronic gearbox or automatic gearbox

In the fully automatic mode, the AS Tronic or automatic gearbox aims to achieve an engine speed in the blue area of the rev counter when the engine brake is operated in combination with the service brake.

In the manual mode, the AS Tronic or automatic gearbox does not automatically shift down to the ideal speed range for the engine brake when the engine brake is operated. When using the engine brake, adjust the gear selection so that the engine speed remains in the blue area of the rev counter.

NOTE: The engine brake does not function when the AS Tronic gearbox changes from one gear to another gear. The vehicle may accelerate when driving downhill.

CAUTION: The vehicle speed may increase when travelling downhill. In the fully automatic mode, the AS Tronic gearbox selects a higher gear to protect the engine against excessive engine speed. If the gearbox is in the manual mode, the engine speed can exceed the maximum permitted engine speed. This can lead to serious damage to the engine.

- ***If the AS Tronic gearbox is in the manual mode, manually select a higher gear to prevent the maximum engine speed from being exceeded (red area of the rev counter).***

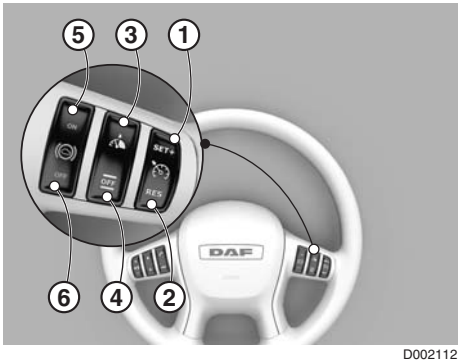
Engaging and disengaging condition for the engine brake

The engine brake is engaged when:
- the accelerator pedal is released, and
- the clutch pedal is not engaged, and
- the engine speed is above 1000 rpm
- (and when the vehicle is not at standstill on a vehicle with an automated gearbox)

The engine brake is disengaged when:
- the accelerator pedal is engaged, or
- the clutch pedal is engaged, or
- the engine speed is below 1000 rpm, or
- the ABS/ASR system has established a tendency for the wheels to lock, or
- the vehicle speed control or Engine Speed Control are activated.
- (or when the vehicle is at standstill on a vehicle with an automated gearbox)

Activation of the engine brake

Press switch (5), on the steering wheel switches to activate the automatic mode of the engine brake. The 'engine brake engaged' symbol is activated on the instrument panel. Every time the engaging conditions are met, the engine brake is activated automatically.



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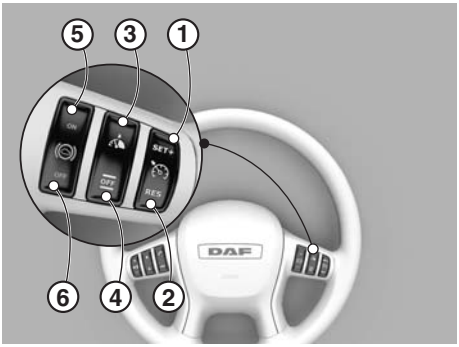
Deactivation of the engine brake

– Press switch (6) on the steering wheel switches to deactivate the engine brake. The 'engine brake engaged' symbol is deactivated on the instrument panel, or
– When the disengaging conditions are met, the engine brake is deactivated temporarily.



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NOTE:
– *The engine cannot be switched off with the engine brake.*
– *To decrease wear of the service brakes, use the engine brake as much as possible.*
– *To prevent the engine brake valve from becoming stuck, it is wise to regularly use the engine brake.*

NOTE: If the ABS/ASR control is activated, the engine brake switches off as long as the control is in operation. On vehicles where the ABS/ASR control fails to function, use of the engine brake increases the risk of skidding on slippery surfaces.

7

Safety systems 8

8.1 ADAPTIVE CRUISE CONTROL (ACC)

8.1.1 Introduction

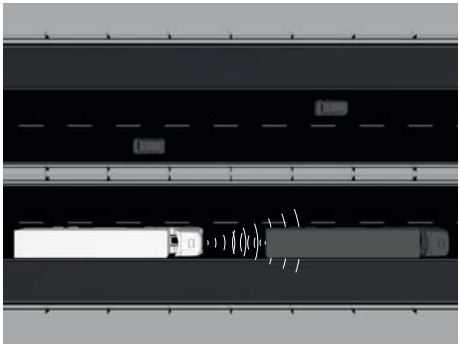
Adaptive Cruise Control (ACC) is an addition to the cruise control that allows automatic speed and/or distance adaptation to the vehicle ahead.
Adaptive Cruise Control is intended for motorway and dual carriageway driving.

If ACC detects a vehicle ahead driving at a lower speed, the speed of the vehicle is automatically reduced. ACC uses a radar sensor for detection. See section 'AEBS/ACC sensor' in chapter 'Warnings and safety regulations'.
The vehicle now drives at the same speed as the vehicle ahead and at a preset distance behind it (depending on the vehicle speed). The set speed for the (Adaptive) cruise control remains stored. As soon as the traffic conditions allow it, the vehicle automatically accelerates back to the stored (Adaptive) cruise control speed.

Object detection

The radar sensor can detect objects up to 150 metres in front of the vehicle. The radar sensor measures speed, distance and lateral position of the vehicle in front. To determine what 'relevant' objects are, ACC divides all objects into three categories:

- Moving in the same direction.
- Moving in the opposite direction.
- Stationary.



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NOTE: The ACC system only 'reacts' to objects in the 'Moving in the same direction' category.

NOTE: ACC does not react to objects moving away from the vehicle (overtaking vehicles, for example). This is because the distance between them is increasing rather than decreasing.

NOTE: Vehicles with a low reflection (for example, motorcycles) may be more difficult for the ACC to identify.

Speed adaptation

If ACC detects a vehicle ahead driving at a lower speed, the speed of the driven vehicle is automatically reduced to the same speed as the vehicle ahead.
The following measures are taken for speed reduction, in the given order:

1. Reduction of engine torque.
2. Activation of the engine brake.
3. Activation of the intarder.
4. Activation of the service brake.

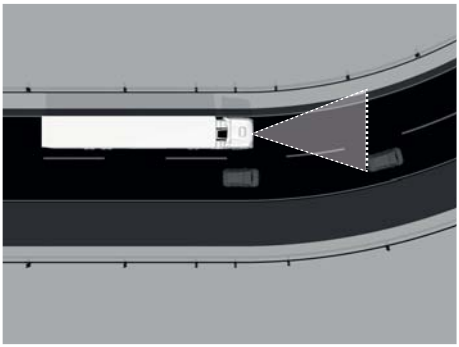
As a result of these measures, the gearbox may automatically shift down.

CAUTION: ACC does NOT brake the vehicle to a standstill. If necessary, the ACC system brakes the vehicle down to 25 km/h (16 mph). Below this speed the ACC system is automatically switched off.

8.1.2 Traffic situations

Bends

At bends, as well as before and after bends, it can be difficult for the ACC to identify objects ahead. The vehicle may brake unexpectedly or 'too' late.
If the vehicle speed in a bend is too high, the vehicle speed is reduced with engine torque reduction.



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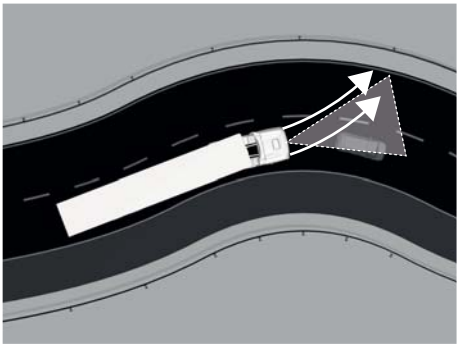

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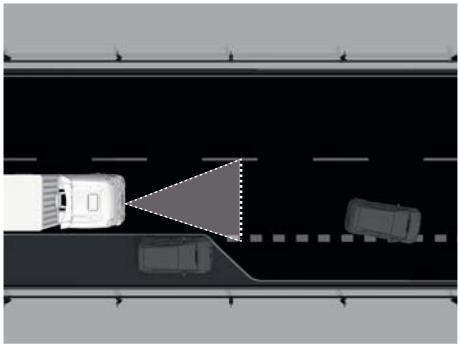
Driving on a different lane, hard shoulder or exits

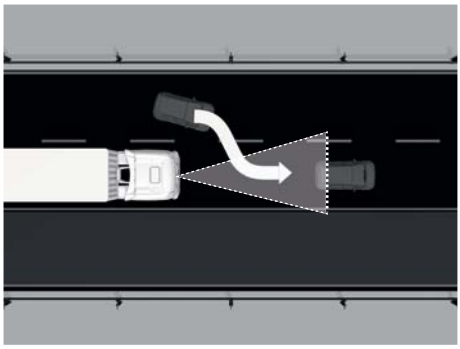
The Adaptive Cruise Control (ACC) may react to vehicles on the hard shoulder, at the side of the road or at exits and brake unnecessarily or 'too' late.



D001699

Lane changes

Other vehicles that are switching lanes immediately in front of the vehicle are not identified by the ACC until they are in the identification zone. In this situation, it may be necessary to use the service brake to increase the distance to the vehicle which is switching lanes.



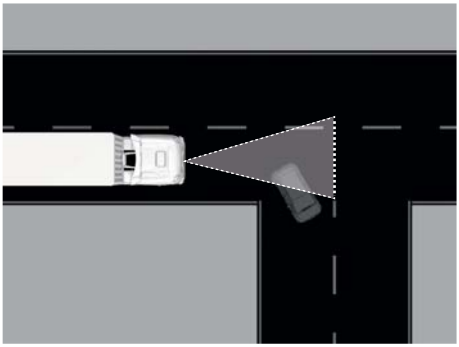
D001700

NOTE: Vehicles with a low reflection (for example, motorcycles) may be more difficult for the ACC to identify.

NOTE: ACC does not react to objects moving away from the vehicle (overtaking vehicles, for example). This is because the distance between them is increasing rather than decreasing.

Vehicles cornering ahead

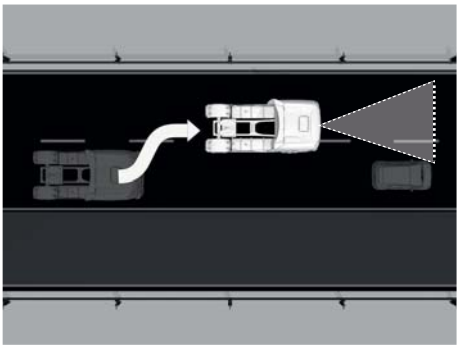
When approaching junctions and exits, vehicles may be detected cornering ahead. ACC may react to these cornering vehicles and brake unnecessarily or 'too' late.



D001701

Overtaking

During the process of overtaking the sensor may fail to detect a vehicle ahead. The distance to the offset vehicle ahead is too short. In this situation, the service brake must be used to increase the distance to the vehicle ahead or the lateral offset must be increased.



D001703

8.1.3 Engaging and disengaging Adaptive Cruise Control (ACC)

WARNING!

– ***Do not adapt your driving style to the knowledge of having Adaptive Cruise Control (ACC).***
ACC is merely a driving aid with certain limitations. ACC cannot prevent accidents and it does NOT replace the driver's professional judgement of the actual traffic situation. It is the driver who is and remains at all times responsible for the proper operation of the truck.

WARNING!

– ***The driver remains responsible for braking the vehicle under all circumstances.***
ACC controls the distance to moving vehicles ahead and not to stationary objects on the road. The vehicle will not brake for stationary objects or for oncoming traffic. ACC cannot bring the vehicle to a complete stop. Ignoring these matters can lead to very dangerous situations (such as a collision) for the driver but also for other road users.

WARNING!

– ***Do not use ACC when towing a trailer with no or no functional ABS.***

WARNING!

– ***The driver remains responsible for keeping a safe distance from the vehicle ahead in all situations.***
It can be difficult for ACC to identify vehicles before bends as well as after bends. For this reason the vehicle may brake unexpectedly or too late. Not keeping a safe distance to the vehicle ahead can lead to very dangerous situations (for example a collision). This is true not only for the driver but also for other road users.

Engaging ACC

ACC is preselected on as soon as the vehicle ignition is switched on. When the cruise control is engaged, ACC is also engaged.
ACC can be switched off using the Adaptive Cruise Control (ACC) distance switch. See section 'Control panel' in chapter 'Instruments and controls'. If the cruise control is then activated, the ACC is not activated. By pressing the Adaptive Cruise Control (ACC) distance switch for a longer period, the system is switched off. Pressing the switch again reactivates the system.

Engaging and disengaging conditions for ACC

Engaging conditions

When all of the following conditions are met, ACC can be engaged:
– The ACC distance switch is not operated.
– The engine is running.
– The vehicle speed exceeds 25 km/h (16 mph) (ex-factory).
– No braking functions are active.
– Variable speed limiter is not active.
– Forward Collision Warning is not active.
– Vehicle Stability Control (VSC) is not active.
– Anti Slip Regulation (ASR) is not active.
– The drive line is not interrupted by the driver (clutch pedal operated, neutral gear selected if AS Tronic).

Disengaging conditions

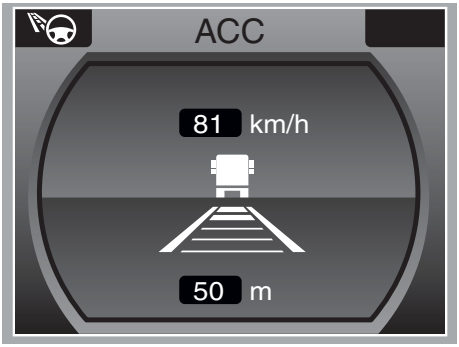
When one of the following conditions is met, ACC is disengaged:
- The ACC distance switch is operated.
- Engine is stopped.
- The vehicle speed drops below 25 km/h (16 mph) (ex-factory).
- The park brake or brake pedal are operated.
- Steering wheel switch 'OFF' is pressed. Cruise control is now switched off.
- Variable speed limiter is active.
- Forward Collision Warning is active.
- Vehicle Stability Control (VSC) is active.
- Anti Slip Regulation (ASR) is active for 3 seconds.
- The drive line is interrupted by the driver (clutch pedal operated, neutral gear selected if AS Tronic) unless a manual gear shift is executed within a few seconds.

Driving with ACC

NOTE: Adaptive Cruise Control is intended for motorway and dual carriageway driving. See 'Object detection' in section 'Introduction'.

ACC engaged and target detected

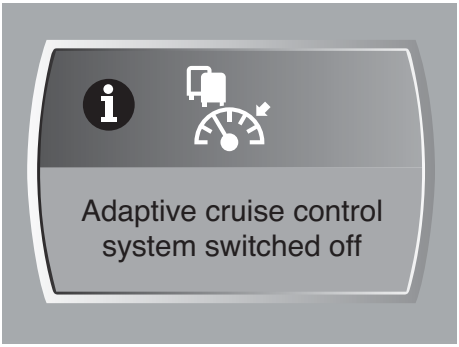
This information screen is available on the master display by using the Menu Control Switch. It shows the speed of the target and the distance to the target. The indication bar shows the driver set distance. ACC adapts the set speed to the target speed until the preset distance is reached.



D001695-2

ACC system switched off

This information screen **'ACC system switched off'** is active on the master display for a few seconds when:
– The vehicle speed drops below 25 km/h (16 mph).
– The ABS/ASR control or the VSC system is activated.

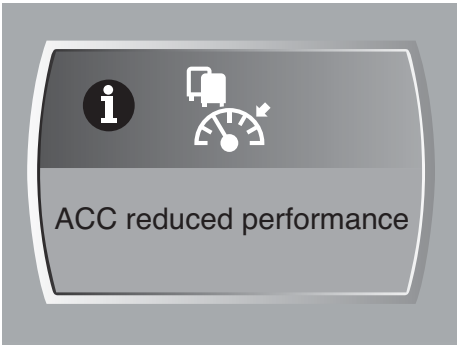


D001726-2

ACC system reduced performance

If ACC uses the service brakes frequently over a long period, this information screen **'ACC reduced performance'** can be active on the master display.
This situation occurs for example during prolonged downhill driving.

If braking is still needed, the driver must take over control by for example using the service brakes.



D002165

*NOTE: When no action is taken, ACC eventually switches off and the information screen **'ACC system malfunction'** might appear on the master display.*

8.1.4 Distance setting to the vehicle ahead

WARNING!
– ***The driver remains responsible for keeping a safe distance from the vehicle ahead in all situations.***
– ***Adapt the distance to the vehicle ahead to the weather conditions.***

The distance between the vehicle and the vehicle ahead is not automatically adapted by Adaptive Cruise Control (ACC) during different weather conditions (for example fog, snow, heavy rain and so on). Not keeping a safe distance to the vehicle ahead can lead to very dangerous situations (like a collision). Not only for the driver but also for other road users.

Distance to the vehicle driving ahead

When ACC is engaged, the electronics automatically set and keep a distance of 50 metres or 2 seconds to the vehicle driving ahead.

Altering the distance to the vehicle driving ahead

The distance to the vehicle driving ahead can be changed.

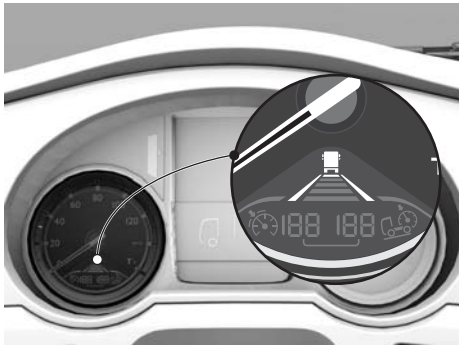
The 3-position spring return switch with fixed central position can be used to alter the distance:

– Press the switch up to decrease the distance to the vehicle ahead.
– Press the switch down to increase the distance to the vehicle ahead.

Five distances can be set in total. When ACC is switched on, the middle distance is automatically set. This corresponds to three bars on the distance indication on the instrument panel.
The chosen distance depends on the vehicle speed.

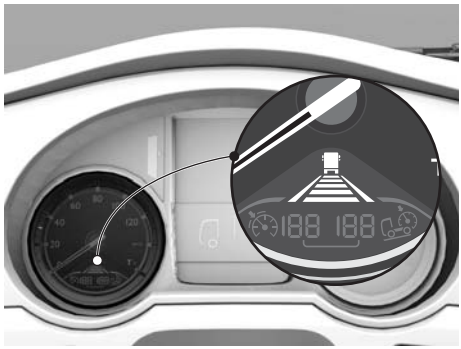
Distance indication on the instrument panel

This distance indication on the instrument panel shows the smallest distance selection to the vehicle ahead.



D001731-3

This distance indication on the instrument panel shows the largest distance selection to the vehicle ahead.



D001734-3

System capability warning

If necessary, ACC adapts the vehicle speed towards the vehicle ahead automatically by using the vehicle brakes, so that a predefined following distance or time is ensured. The use of the vehicle brakes by ACC is limited to a certain level. If ACC is not able to maintain a safe distance to the vehicle ahead, the **'Distance'** warning is activated on the master display. The driver must assist the vehicle braking by using the brake pedal.

D001723

CAUTION: ACC does NOT brake the vehicle to a standstill. If necessary, ACC brakes the vehicle to 25 km/h (16 mph), and below this speed the ACC is automatically switched off.

8.1.5 ACC system warning

The **'ACC system malfunction'** warning is activated if:

– A general ACC system malfunction occurs.
– The vehicle air pressure drops below 6.5 bar with a vehicle speed that exceeds 15 km/h (9 mph).

D001727-2

The cruise control can still be engaged if ACC is switched off by the ACC switch on the control panel.

8.2 FORWARD COLLISION WARNING (FCW)

8.2.1 Forward Collision Warning (FCW)

Vehicles equipped with Adaptive Cruise Control (ACC) also have Forward Collision Warning (FCW).

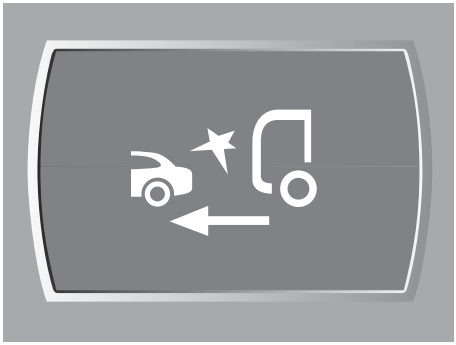
FCW is engaged automatically when the vehicle speed exceeds 15 km/h (9 mph). Unlike the ACC, the FCW cannot be switched off.

FCW generates an acoustic signal (radio is muted) and a warning on the master display when the distance to the object ahead of the vehicle cannot be maintained by normal braking.

WARNING! When an FCW is issued the driver must immediately take over control of the vehicle.
Depending on the situation by for example braking the vehicle using the vehicle's brakes.

There are two situations when an FCW is shown on the master display:

– **With ACC switched off.**
When the distance to the vehicle ahead becomes too small or the traffic situation requires immediate braking by the driver using the vehicle's brakes.
– **With ACC switched on.**
When, after the **System capability warning**, the distance to the vehicle ahead still becomes too small or the traffic situation requires immediate braking by the driver using the vehicle's brakes.



D001724

NOTE: The FCW function is not active when the vehicle speed is less than 15 km/h (9 mph).

NOTE: Even with ACC switched on an FCW might be activated unintentionally for a short time in some traffic situations. See section 'Traffic situations'.

8.3 ADVANCED EMERGENCY BRAKING (AEBS)

8.3.1 Introduction

WARNING! Do not adapt your driving style to the knowledge of having the Advanced Emergency Braking System (AEBS).
AEBS is merely a driving aid with certain limitations. AEBS cannot prevent accidents and it does NOT replace the driver's professional judgement of the actual traffic situation. It is the driver who is and remains at all times responsible for the proper operation of the truck.

WARNING! AEBS cannot prevent a collision. There is a risk of an accident. The driver remains responsible. Always apply the brakes yourself and try to take evasive action.

Advanced Emergency Braking System (AEBS) is an addition to the Forward Collision Warning (FCW).
AEBS is preselected as on by default and disengaged and engaged using the AEBS switch. A warning indicator on the instrument panel indicates that AEBS is disengaged.

NOTE: Under certain circumstances a functional AEBS is not desirable and can be disengaged using the AEBS switch. Examples of such circumstances are;
- *when the vehicle is towed,*
- *driving on a building site or*
- *in heavy city traffic.*

NOTE: The Forward Collision Warning (FCW) cannot be switched off.

The ACC/AEBS sensor monitors the speed, the distance to and position of the objects in front of the vehicle.
See section 'AEBS/ACC sensor' in chapter 'Warnings and safety regulations'.

AEBS can help to minimise the risk of a collision with a vehicle in front or a stationary vehicle or object. As a result, the effects of an accident can be mitigated. AEBS can also recognise stationary objects and react to them, for example, by issuing a warning and braking.

If you fail to adapt your driving style or if you are inattentive, AEBS can neither reduce the risk of accident nor override the laws of physics. AEBS cannot take road and weather conditions into account, nor the prevailing traffic situation. AEBS is only an aid. You are responsible for keeping a safe distance to the vehicle in front, for the vehicle speed, braking on time and keeping the driving lane. You should always adapt your driving style to suit prevailing road and weather conditions.

NOTE: AEBS does not react to objects moving away from the vehicle (overtaking vehicles, for example). This is because the distance between them is increasing rather than decreasing.

NOTE: AEBS cannot always detect other road users (for example, motorcycles or low bed semi-trailers) and complex traffic situations (for example, curves, tunnels or busy city traffic).

8.3.2 Engaging and disengaging Advanced Emergency Braking System (AEBS)

WARNING!

– ***Do not adapt your driving style to the knowledge of having the AEBS.***
AEBS is merely an aid to assist the driver. AEBS does not release the driver from the obligation to be responsible at all times for the vehicle speed and distance to the vehicle ahead. Ignoring these matters can lead to very dangerous situations (such as a collision) for the driver but also for other road users.

WARNING!

– ***The driver remains responsible for braking the vehicle under all circumstances.***
AEBS will not brake for people or animals or for oncoming traffic. AEBS may not bring the vehicle to a complete stop under all conditions. Ignoring these matters can lead to very dangerous situations (such as a collision) for the driver but also for other road users.

WARNING!

– ***Do not use AEBS while driving in off-road situations.***
The cover of the AEBS/ACC sensor might get dirty causing AEBS to react incorrectly.
In such case AEBS may:
  – ***Give an unnecessary warning and then brake the vehicle.***
  – ***Neither give a warning nor intervene.***

WARNING!

– ***The driver remains responsible for keeping a safe distance from the vehicle ahead in all situations.***
AEBS cannot always detect other road users (for example, motorcycles or low bed semi-trailers).
In such cases AEBS may:
  – ***Give an unnecessary warning and then brake the vehicle.***
  – ***Neither give a warning nor intervene.***

Engaging AEBS

AEBS is preselected on as soon as the ignition of the vehicle is switched on.

AEBS is disengaged and engaged using the AEBS on/off switch on the control panel.

NOTE: The Forward Collision Warning (FCW) cannot be disengaged.

If AEBS is switched off, this warning indicator is lit on the instrument panel.

Disengaging AEBS

Disengaging conditions

When one of the following conditions is met, AEBS is disengaged:

- The AEBS on/off switch is operated.
- There is a malfunction in the AEBS.
- The vehicle speed drops below 15 km/h (9 mph) (ex-factory).
- ABS is deactivated by a malfunction.
- There is a malfunction in the vehicle brake system (EBS).

CAUTION: AEBS must be switched off under the following circumstances:

- ***Driving with a trailer with no or no functional ABS.***
- ***No functional brake lights on truck or (semi-) trailer. There is no feedback for following traffic.***

  NOTE: It is illegal to drive without functional brake lights.
- ***Driving off road.***

  NOTE: When you are finished driving off road, check the cover of the ACC/AEBS sensor for dirt or damage.
- ***On a high speed roller tester.***

8.3.3 Detection and intervention

WARNING! AEBS does not react to:

- ***people or animals***
- ***oncoming vehicles***

As a result, AEBS might not warn you or intervene in these situations. There is a risk of an accident.
Always pay careful attention to the traffic situation and be ready to brake.

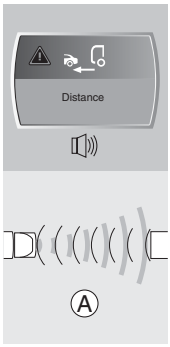
WARNING! AEBS cannot always recognise other road users and complex traffic conditions.
In such cases, AEBS may:
- ***give an unnecessary warning and then brake the vehicle***
- ***neither give a warning nor intervene***

There is a risk of an accident.
Continue to drive carefully and be prepared to brake, particularly if AEBS warns you.

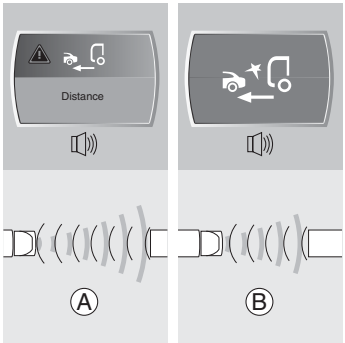
If AEBS detects the risk of a front-end collision, it issues an audible and visual warning. If the risk persists, AEBS automatically initiates partial braking of the vehicle. If you do not react to the warnings and partial brake application, AEBS automatically initiates an emergency brake application.

The Adaptive Cruise Control (ACC) may warn you (A) before AEBS if there is a risk of collision.
See section 'System capability warning'.

The three steps in which AEBS can intervene are:
Step 1
An FCW is issued both as a warning on the master display and as an acoustic signal (B).



D002167-2

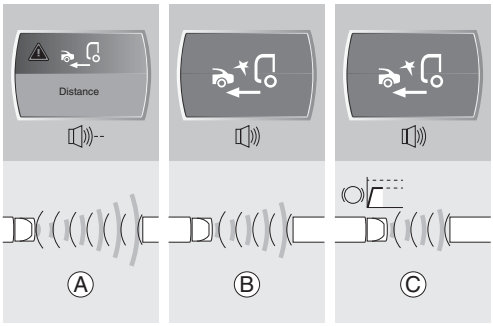


D002171-2

NOTE: The FCW cannot be suppressed.

NOTE: If an FCW is active, the audio device and/or hands-free system installed at the factory are automatically muted.

Step 2
The FCW is combined with an autonomic partial braking of the vehicle (C).

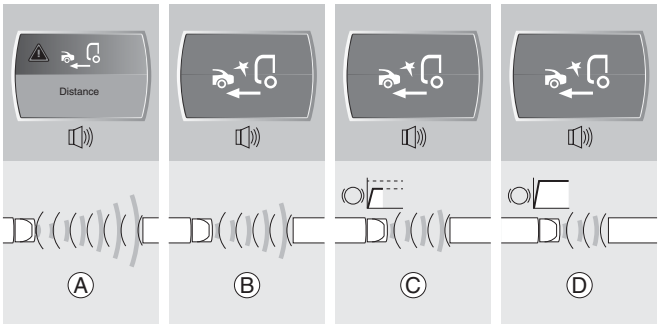


D002178-2

NOTE: This partial braking can be suppressed by:
- *operating the indicators left or right just before or during the FCW,*
- *switching AEBS off using the switch on the control panel.*

NOTE: This partial braking can be interrupted by the driver either by:
- *operating the indicators left or right,*
- *depressing the accelerator pedal beyond the pressure point (kickdown) or*
- *switching AEBS off using the switch on the control panel.*

Step 3
FCW remains active and an emergency braking is performed trying to avoid or at least mitigate a collision (D).



D002164-2

NOTE: This emergency braking can be interrupted by the driver either by:
- *Operating the indicators left or right,*
- *Depressing the accelerator pedal beyond the pressure point (kickdown) or*
- *switching AEBS off using the switch on the control panel.*

WARNING! AEBS cannot prevent a collision. There is a risk of an accident. Always apply the brakes yourself and try to make an evasive manoeuvre.

NOTE: AEBS only 'reacts' to objects moving in the same direction and stationary objects.

NOTE: AEBS does not react to objects moving away from the vehicle (overtaking vehicles, for example). This is because the distance between them is increasing rather than decreasing.

NOTE: AEBS cannot always detect other road users (for example, motorcycles or low bed semi-trailers), vehicles driving on a different line and complex traffic situations (for example, curves, tunnels or busy city traffic).

NOTE: AEBS does not automatically adapt to road and traffic conditions.

8.4 LANE DEPARTURE WARNING SYSTEM (LDWS)

8.4.1 LDWS (Lane Departure Warning System)

The LDWS warns the driver when the vehicle unintentionally departs from its lane. The LDWS uses a camera behind the windscreen to detect road line markings. Markings like solid white or yellow lines, dashed white or yellow lines and raised dots ('Botts' dots). An acoustic signal (radio is muted) initiates in the left-hand or right-hand front speaker when the lane is departed.
The acoustic signal sounds like driving over a rumble strip, and is heard on the side on which the vehicle has departed from the lane.

Engaging conditions

The acoustic signal initiates in the left-hand or right-hand front speaker when all of the following conditions are met:

- The ignition is switched on.
- The LDWS switch is not operated to disable.
- The vehicle speed is above 60 km/h (37 mph).
- The direction indicator is not applied or has not been applied during the last 30 seconds.
- The brake pedal is not applied.
- The vehicle leaves the lane.

Engaging and disengaging LDWS

LDWS is engaged automatically when the ignition is switched on.
Press the LDWS switch to disengage or engage the LDWS.

NOTE: The LDWS can only warn the driver when the lane markings are clearly recognisable. The function of the system is indicative only. It cannot guarantee that the correct lane has been chosen under all circumstances. Accurate and consistent functioning of LDWS requires clear visibility and recognition of the lane markings.
Unfavourable conditions or weather conditions can have a negative influence on the LDWS performance. For example:

- *Snow and/or ice.*
- *Heavy rain or fog.*
- *Heavily soiled, misted or otherwise blocked windscreen.*

NOTE: This applies of course especially for the area around and in front of the camera and can possibly trigger a pop-up warning 'Camera blocked'.
Depending on the weather conditions it is for example caused by condense. This can be solved by switching on the heater fan including air conditioning.

- *Worn-out windscreen wipers.*
- *Multiple or poorly recognisable lane markings.*
- *Driving in narrow curves.*
- *Road partly covered with for example snow, sand or gravel.*
- *Reflections caused by standing water.*
- *Reflections caused by road repairs.*
- *Wheel tracks on wet roads.*

If this warning indicator is visible on the instrument panel, LDWS cannot detect any lines or the camera is blocked or the LDWS switch was operated to disable or a malfunction is detected.

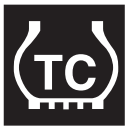
NOTE: A briefly shown pop-up screen on the master display notifies these causes.

8.5 ANTI SLIP REGULATION (ASR)

8.5.1 Anti Slip Regulation (ASR)

ASR prevents the driven wheels from slipping when accelerating. ASR makes sure that the vehicle remains stable when driving off on critical road surfaces (especially accelerating when cornering). ASR is an addition to the EBS system.

When the driven wheels start to slip on one or both sides of the vehicle, ASR becomes active. One or both wheel(s) is/are braked and/or engine power is decreased. In this way, optimum traction is achieved.



If the ASR system intervenes, the warning indicator on the instrument panel starts flashing.

Increased wheel slip

When the ASR switch is operated, increased wheel slip is permitted.

Below a speed of 45 km/h, the ASR control is adjusted so that more wheel slip is permitted. This function can be used when driving on loose surfaces (for example sand, gravel, snow). When the ASR switch is used to switch off the function, the ASR disabled warning indicator on the instrument panel is visible.

8.6 VEHICLE STABILITY CONTROL (VSC)

8.6.1 Vehicle Stability Control (VSC)

The VSC system 'Vehicle Stability Control' helps the driver to stabilise the vehicle combination in critical driving situations. If a critical driving situation arises when making turns, for example when the vehicle slips or might turn over, VSC intervenes by reducing the engine torque and activating the brake system.

NOTE: A vehicle that is equipped with VSC may unexpectedly brake hard in certain situations.

When the VSC system intervenes, the VSC warning indicator starts flashing on the instrument panel.
When the VSC warning indicator remains on, the system has a fault. Have service performed by the nearest DAF Service dealer.

WARNING!

– ***Do not adapt the driving style to the knowledge of having VSC control.***

'Vehicle Stability Control' control does not release the driver from the obligation to adapt the driving style to the traffic and road surface conditions. It is not a guarantee against instability; it helps the driver in unexpected difficult situations, but physical limits remain. VSC control cannot offset the results of driving too close to the vehicle in front or taking a bend at too high a speed. Ignoring these matters can lead to very dangerous situations (like a collision or vehicle turn over) for the driver but also for other road users.

Driver assist systems 9

9.1 VEHICLE ACCELERATION LIMITER

9.1.1 Vehicle acceleration limiter

To increase the positive influence on fuel consumption further, vehicles equipped with 220, 250, 280 and 310 hp engines have a vehicle acceleration limiter as a standard feature.
The result of the vehicle acceleration limiter is a relatively high vehicle acceleration at lower vehicle speeds. The vehicle acceleration reduces as the vehicle speed increases.
In case of a laden vehicle, the vehicle acceleration limiter will not be noticed.
In case of an unladen or partly laden truck, the driver may notice the vehicle acceleration limiter, depending on his natural driving style.
It is not possible to overrule the acceleration limiter.

9.2 HILL START AID

9.2.1 Hill Start Aid

If the vehicle is equipped with an AS Tronic gearbox, it also has Hill Start Aid. Hill Start Aid can be used when driving off on a hill, without having to use the park brake.

Hill Start Aid becomes active when:
– The engine is running.
– The Hill Start Aid is enabled using the switch on the control panel.
– The vehicle is stopped.
– The brake pedal is applied.
– The park brake is not applied.
– 'D' or 'R' is selected with the DNR switch.

Hill Start Aid remains active (brake boosters activated) as long as the foot brake is briefly operated. The warning **'Hill Start Aid active'** is shown on the master display. If the brake pedal is released and the accelerator pedal is depressed, the vehicle drives off and the warning **'Hill Start Aid active'** disappears.

NOTE: Depress the accelerator pedal to the full throttle position when driving off in a fully loaded vehicle.

Engaging conditions

Hill Start Aid can be engaged when:
– The Hill Start Aid is enabled using the spring loaded switch on the control panel.
– The vehicle is at standstill.
– The park brake is released.
– The brake pedal is applied.
– ABS has not been activated during the last stop.

Disengaging conditions

Hill Start Aid is disengaged when:
– The Hill Start Aid is disabled using the spring loaded switch on the control panel.
– The ignition is switched off.
– The park brake is applied.

*NOTE: If all of the available pedals (accelerator, brake and clutch) are released, the **'Brake release'** warning is shown on the master display and the brakes are released. Once the brake pedal is depressed again, Hill Start Aid becomes active again.*

Engaging and disengaging Hill Start Aid

Use the switch on the control panel to engage or disengage Hill Start Aid.

9.3 TYRE PRESSURE INDICATION (TPI)

9.3.1 TPI (Tyre Pressure Indication)

TPI (Tyre Pressure Indication) is a function of EBS that monitors the tyre pressures, without directly measuring the pressure in the tyres. A tyre pressure loss is calculated from a change of the tyre circumference.
If TPI detects a low pressure on one of the tyres, a TPI warning is activated on the master display. TPI indicates which tyre is low on pressure.

D002110

WARNING! Driving with soft tyres may lead to a longer braking distance, unstable brake behaviour and unstable vehicle behaviour. Also, the tyre wear and the fuel consumption are increased. Ignoring these matters can lead to very dangerous situations not only for the driver but also for other road users. It can also lead to damage to the vehicle.

– ***TPI does not release the driver from the need to regularly inspect the tyre pressure.***

Unfavourable conditions can have a negative influence on the TPI function. For example:
– TPI cannot alert the driver to severe and sudden tyre damage caused by external factors.
– TPI will not identify the natural, even loss of pressure in all tyres.
– Under certain circumstances, an unjustified or delayed TPI warning may be activated when driving on snow-covered or slippery road surfaces.
– Excessive wheel slip can lead to a delayed TPI warning.
– If TPI is not (correctly) calibrated, an unjustified or delayed TPI warning may be activated.
– The tyre chains are being used, or the vehicle is being driven on a rough or frozen road.
– Two low-pressure tyres were on the same axle.

TPI warning symbol in master display

In case of an active TPI warning:
1. Select **'Driving support'** in the main overview of the master display, using the 'Menu Control Switch'.
2. Select **'Tyre pressure'**.
   On this screen, the question is asked if a reset of the TPI is required.
3. Visually check all tyres, especially the tyre indicated as below normal pressure.
4. Adjust the tyre pressure of **all** tyres to the correct value. See section 'Tyres' in chapter 'Technical data and identification'.
5. Select **'Yes'**to initiate the TPI reset.

*NOTE: If **'No'** is selected a new question screen automatically pops up asking if calibration of the TPI is required. See TPI calibration.*

6. Drive for at least 5 kilometres to deactivate an active TPI warning.

NOTE: The driving distance required to deactivate the TPI warning depends on the road conditions (bends) and driving conditions (braking).

TPI calibration

After changing a tyre, wheel or the tyre pressure, the difference between the diameters of the various tyres on the vehicle may have become too large (for example, as a result of differences in tread depth and/or tyre pressure).
TPI calibration values are stored and consist of values concerning differences in tyre sizes, different tyre types and tyre manufacturer tolerances. If certain values are changed, TPI calibration is required.

TPI must be calibrated:
– When the vehicle is first taken into service.
– If a tyre is changed, or

– If a wheel is changed, or
– If the tyre pressure is adjusted to a different value than the initially calibrated tyre pressure.

NOTE: Not calibrating TPI in these circumstances can lead to an unjustified TPI warning.

How to calibrate TPI

1. Adjust **all** tyres to the correct tyre pressure. See section 'Tyres' in chapter 'Technical data and identification'.
2. Select **'Driving support'** in the main overview, using the 'Menu Control Switch'
3. Select **'Tyre pressure'**
4. Select **'No'** to initiate the TPI calibration.
5. Select **'Yes'** in the pop-up screen **'Tyre pressure calibration required'**.
6. A pop-up screen indicates that the calibration is in progress

After driving approximately 25 km, TPI is calibrated automatically.

NOTE: The driving distance required to calibrate TPI depends on the road conditions (bends) and driving conditions (braking).
If the pop-up screen indicates that calibration has failed, the procedure to calibrate TPI must be repeated.

Manual gearbox ZF 10

10.1 GENERAL

To prevent rapid wear and burning of the clutch plate and clutch release assembly, only use first gear when driving off. This applies to both a laden and an unladen vehicle.

Always depress the clutch fully when changing gear to prevent excessive wear of the synchromesh units.

The gearboxes are synchromesh units. When changing gear, exert consistently steady pressure on the gear change lever until the gear has engaged.

CAUTION: Shifting down at a speed that is too high for the selected gear can damage the engine (overspeeding) and/or the gearbox.
- ***When shifting down, make sure that the speed is not too high for the selected gear.***

CAUTION: Engaging a drive-off gear while the vehicle is moving can damage the gearbox and differential.
- ***Only engage the forward drive-off gear when the vehicle is fully stationary, the engine is at idle speed and the clutch is fully pressed.***
- ***Only engage the reverse gear 3 seconds after the vehicle is fully stationary, the engine is at idle speed and the clutch is fully pressed.***
- ***Do not drive off in the opposite direction while the vehicle is still moving.***

10.2 5-SPEED GEARBOX

The ZF 5-speed gearbox has five fully synchronised forward gears and one non-synchronised reverse gear. When changing gear, exert consistently steady pressure on the gear change lever until the gear has engaged.

D002133

CAUTION: Shifting down at a speed that is too high for the selected gear can damage the engine (overspeeding) and/or the gearbox.
- ***When shifting down, make sure that the speed is not too high for the selected gear.***

CAUTION: Engaging a drive-off gear while the vehicle is moving can damage the gearbox and differential.

- ***Only engage the forward drive-off gear when the vehicle is fully stationary, the engine is at idle speed and the clutch is fully pressed.***
- ***Only engage the reverse gear 3 seconds after the vehicle is fully stationary, the engine is at idle speed and the clutch is fully pressed.***
- ***Do not drive-off when the vehicle is still moving in the opposite direction.***

Shifting gears

- To avoid excessive and unnecessary clutch wear, **always** engage the **first gear** when **driving off**. This applies to both laden and unladen vehicles.
- Always press the clutch fully when shifting gears.
- Push the gear change lever smoothly when shifting until the gear is engaged.

Driving

- Select the highest possible gear while at the same time keeping the engine speed in the green area of the rev counter.
- When speeding up, keep the engine speed within the green area of the rev counter as much as possible.

10.3 6-SPEED GEARBOX

The ZF 6-speed gearbox has six fully synchronised forward gears and one non-synchronised reverse gear. When changing gear, exert consistently steady pressure on the gear change lever until the gear has engaged.

D002134

CAUTION: Shifting down at a speed that is too high for the selected gear can damage the engine (overspeeding) and/or the gearbox.

- ***When shifting down, make sure that the speed is not too high for the selected gear.***

CAUTION: Engaging a drive-off gear while the vehicle is moving can damage the gearbox and differential.

- ***Only engage the forward drive-off gear when the vehicle is fully stationary, the engine is at idle speed and the clutch is fully pressed.***
- ***Only engage the reverse gear 3 seconds after the vehicle is fully stationary, the engine is at idle speed and the clutch is fully pressed.***
- ***Do not drive-off when the vehicle is still moving in the opposite direction.***

Shifting gears

- To avoid excessive and unnecessary clutch wear, **always** engage the **first gear** when **driving off**. This applies to both laden and unladen vehicles.
- Always press the clutch fully when shifting gears.
- Push the gear change lever smoothly when shifting until the gear is engaged.

Driving

- Select the highest possible gear while at the same time keeping the engine speed in the green area of the rev counter.
- When speeding up, keep the engine speed within the green area of the rev counter as much as possible.

10.4 9-SPEED GEARBOX

The ZF 9-speed gearboxes have eight synchronised forward gears, one crawler gear (C) and one reverse gear. The gearbox has a low speed range (1st to 4th gear) and a high speed range (5th to 8th gear). When changing gear, exert consistently steady pressure on the gear change lever until the gear has engaged.

D002132

CAUTION: Shifting down at a speed that is too high for the selected gear can damage the engine (overspeeding) and/or the gearbox.

- ***When shifting down, make sure that the speed is not too high for the selected gear.***

CAUTION: Engaging a drive-off gear while the vehicle is moving can damage the gearbox and differential.

- ***Only engage the forward drive-off gear when the vehicle is fully stationary, the engine is at idle speed and the clutch is fully pressed.***
- ***Only engage the reverse gear 3 seconds after the vehicle is fully stationary, the engine is at idle speed and the clutch is fully pressed.***
- ***Do not drive-off when the vehicle is still moving in the opposite direction.***

Shifting gears

- To avoid excessive and unnecessary clutch wear, **always** engage the **first gear** when **driving off**. This applies to both laden and unladen vehicles.
- Always press the clutch fully when shifting gears.
- Push the gear change lever smoothly when shifting until the gear is engaged.
- Shifting from the low to the high speed range is done with a low-range switch on the front of the gear change lever. With the switch down (position A), the low range (1st to 4th gear) is engaged. With the switch up (position B), the high range (5th to 8th gear) is engaged.
- Pre-selection is permitted. Actual shifting from the low to the high range or vice versa takes place as the gear change lever passes through neutral.

CAUTION: If you forget to move up the low-range switch to position (B) when changing up from low range to high range, a gear of the low range (1st to 4th gear) might be selected at too high a vehicle speed. This can seriously damage the clutch, gearbox and engine.

- ***Do not forget to move up the low-range switch to position (B) when changing up from low range to high range.***

NOTE:

- *If shifting from the high to the low range takes place at too high a vehicle speed, a protection device prevents shifting to the low range.*
- *If the protection device is defective, it is only possible to change gears within the high speed range. Also see 'gearbox low-range protection' in chapter 'Emergency repairs'.*

Driving style

- When speeding up, keep the engine speed within the green area of the rev counter as much as possible.
- Select the highest possible gear while at the same time keeping the engine speed in the green area of the rev counter.

10

AS Tronic gearbox 11

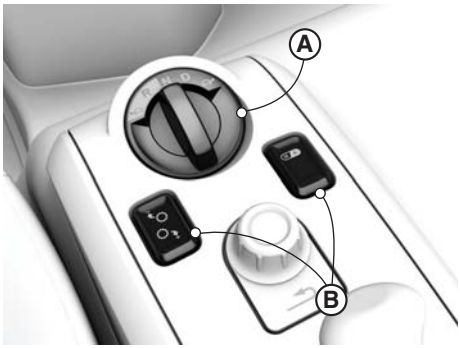
11.1 INTRODUCTION

General

The AS Tronic gearbox is a fully automated gearbox based on a mechanical gearbox combined with an electropneumatic gear and clutch control system.

The AS Tronic Lite gearbox is a fully automatic gearbox based on a conventional mechanical system combined with an electrohydraulic gear and clutch control system.

In contrast to conventional automatic gearboxes, the AS Tronic does not show any tendency to creep when a gear is engaged.
Although the accelerator pedal has a kick-down section (full throttle), the AS Tronic does not have an enforced gear-down shift function.
The automated gearbox always starts in fully automatic mode.



D002143

A Rotary knob with AS Tronic gearbox

B Switches for AS Tronic Lite manual gear control

Using the switches, two different modes can be selected.
– Automatic mode (A), in which clutch and gear controls are operated electronically. See section 'Automatic gear control'.
– Manual mode (M), in which the electronics check each intended gear change. If necessary, the selected gear is ignored to prevent overloading of the engine and the transmission.

All important system information, such as neutral position, current gear and manoeuvring mode is shown on the tachograph display. Clutch overload and any faults in the system are shown on the master display.

WARNING!
- ***Never leave the vehicle when the engine is running and a gear is engaged.***
- ***Always set the gearbox selector switch to N (neutral) before leaving the vehicle.***
- ***Always apply the park brake before leaving the vehicle.***

Leaving the vehicle with the engine running and a gear engaged can result in the vehicle moving off without a driver. This may lead to dangerous situations resulting in serious injury, and can damage the vehicle.

If the door of the vehicle is opened and a gear is engaged:
- an acoustic signal is audible
- a warning is visible on the master display.

NOTE: Gearbox shift behaviour of the AS Tronic gearbox is different when the engine has not reached operating temperature. This function is overruled when:
- *High engine torque is needed.*
- *Operating temperature has been reached.*

11.2 DRIVING OFF ON A FLAT SURFACE

- Foot on brake.
- Rotary knob in position **D** (Drive; automatic or manual forward drive) or **R** (Reverse).
- The gear that has been engaged appears in the master display.
- Release the park brake.
- Release the foot brake and accelerate.

D002114

NOTE: Only accelerate as much as is required. Do not change the accelerator pedal position while changing gears.

Every time the engine is started, the AS Tronic Lite system selects the first gear as a drive-off gear.
After load detection it is also possible that the second gear is selected as drive-off gear, if the vehicle load is below certain limits.

NOTE: The result of the load detection process depends on the vehicle load and engine load. The load detection process can take some time to finish. Every time the vehicle is at standstill for a longer period or when the contact is switched off, load detection is reset.

WARNING! If the accelerator pedal is not operated, the vehicle may start to roll. If rolling is unwanted, this may lead to dangerous situations resulting in serious injury and damage to the vehicle.

– ***If rolling is unwanted, apply the service brake if the accelerator pedal is not operated.***

CAUTION: When the vehicle is at standstill and a gear is engaged, pressing the accelerator and brake pedal at the same time leads to damage to the clutch assembly.

– ***Never press the accelerator and brake pedal at the same time.***

Rolling vehicle in neutral position

Rolling vehicle in **N**:

– Turn the rotary knob to position **D**.
– The AS Tronic Lite system selects a gear for pulling away and the vehicle pulls off.

WARNING! If the vehicle rolls back, forward gear cannot be selected. If the vehicle rolls forward, reverse gear cannot be selected. This can lead to dangerous situations resulting in serious injury or damage to the vehicle if driving off is required.

– ***Stop the vehicle immediately with the service brake. Then select a gear and drive off.***

WARNING! If the vehicle rolls and a gear is not engaged (selector switch in N), the drive line is interrupted and engine braking is not possible. This may lead to dangerous situations resulting in serious injury or damage to the vehicle.

– ***If prolonged braking is necessary, select a gear (selector switch in D) or use the retarder, if present on the vehicle.***

CAUTION: If the vehicle rolls off in the opposite direction to that of the engaged gear, the clutch and/or the differential may be overloaded or damaged when the accelerator is pressed.

– ***Never press the accelerator when the vehicle rolls off in the opposite direction to that of the engaged gear.***

CAUTION: The clutch slips continuously when driving in the manoeuvring position. Driving on a level road in this position may lead to clutch overload or damage.

- ***Never use the manoeuvring position for normal driving on a level road.***
- ***Only use the manoeuvring position for actual manoeuvring.***
- ***The exception to this is driving on snowy roads when the driven wheels have no traction, in which case the manoeuvring mode can be used on flat roads only. Try to make a path by rocking the vehicle backwards and forwards. To do this, select the forward and reverse manoeuvring mode alternately while giving a little throttle. Keep the vehicle in motion by using the moving weight of the vehicle. Only use the manoeuvring mode in this way for a few moments to avoid overloading the clutch.***

11.3 AUTOMATIC GEAR CONTROL

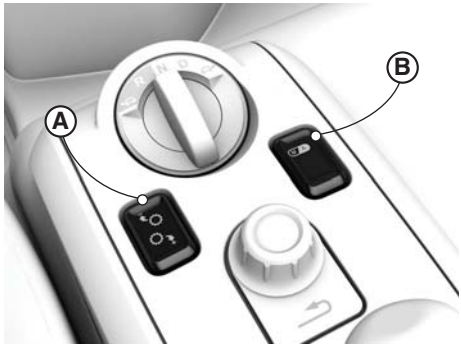
The automated gearbox always starts in fully automatic mode.
The AS Tronic Lite calculates the shifting times for any situation, taking into account the current driving conditions.

CAUTION: The vehicle speed may increase when travelling downhill. In fully automatic mode, the AS Tronic Lite gearbox selects a higher gear to protect the engine against excessive engine speed. If the gearbox is in manual mode, the engine speed can exceed the maximum permitted engine speed. This can lead to serious damage to the engine.

- ***If the gearbox is in manual mode, manually select a higher gear to prevent the engine from exceeding the maximum engine speed (red area of the revolution counter).***

11.4 MANUAL GEAR CONTROL

Manual gear control always remains possible using switch (A):



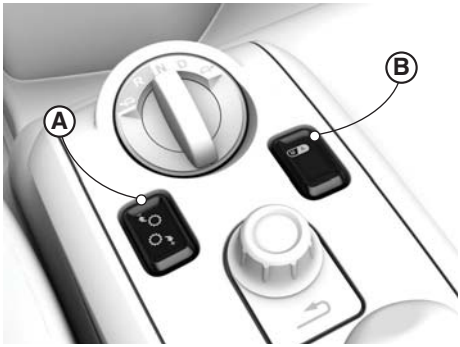
D002150

– shift up.
  Press **+** on switch (A).
– shift down.
  Press **-** on switch (A).

*NOTE: When switch (B) has been operated, the gearbox is in manual control. Indication on the tachometer display: **M** (Manual)*

WARNING! If the vehicle rolls and a gear is not engaged (selector switch in N), the drive line is interrupted and engine braking is not possible. This may lead to dangerous situations resulting in serious injury or damage to the vehicle.
– ***If prolonged braking is necessary, select a gear (selector switch in D) and engage the engine brake.***

Revert to automatic:
– press switch (B).



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11.5 MANOEUVRING

Forward manoeuvring mode

D002115

Reverse manoeuvring mode

In the manoeuvring mode (for example, when entering a loading dock or coupling or uncoupling trailers) the vehicle speed and pulling force are very easy to control with the accelerator pedal. When the accelerator is released, the vehicle stops.
When driving in manoeuvring mode, there is continuous slip in the clutch. Therefore, only use the manoeuvring mode for actual manoeuvring.
The lowest gear is always selected for the manoeuvring mode, both forward and reverse, and the maximum engine speed, with the accelerator pedal down, is limited.
The manoeuvring mode is not a crawl gear.

D002118

WARNING! If the accelerator pedal is not operated, the vehicle may start to roll. If rolling is unwanted, this may lead to dangerous situations resulting in serious injury and damage to the vehicle.
- ***If rolling is unwanted, apply the service brake if the accelerator pedal is not operated.***

CAUTION: The clutch is continuously slipping when driving in the manoeuvring mode. Driving on a level road in this mode may lead to clutch overload or damage.
- ***Only use the manoeuvring mode for actual manoeuvring.***
- ***Never use the manoeuvring mode for normal driving on a level road, on a gradient or when driving over heavy terrain.***
- ***The exception to this is driving on snowy roads when all traction increasing aids (such as increasing the wheel slip with ASR switch, lifting trailing axle etc.) have been applied and the driven wheels still have no traction, in which case the manoeuvring mode can be used on flat roads only. Try to make a path by rocking the vehicle backwards and forwards. To do this, select the forward and reverse manoeuvring mode alternately while giving a little throttle. Keep the vehicle in motion by using the moving weight of the vehicle. Only use the manoeuvring mode in this way for a few moments to avoid overloading the clutch.***

CAUTION: When the vehicle is at standstill and a gear is engaged, pressing the accelerator and brake pedal at the same time leads to damage to the clutch assembly.
- ***Never press the accelerator and brake pedal at the same time.***

11.6 DRIVING ON A GRADIENT

Driving off on a gradient

WARNING!

– ***If the vehicle rolls, stop the vehicle immediately using the brake pedal. Then select a gear and drive off.***

If the vehicle rolls back, forward gear cannot be selected. If the vehicle rolls forward, reverse gear cannot be selected. This can lead to dangerous situations resulting in serious injury or damage to the vehicle if driving off is required.

CAUTION:

– ***Never press the accelerator when the vehicle rolls off in the opposite direction to that of the engaged gear.***

If the vehicle rolls off in the opposite direction to that of the engaged gear, depressing the accelerator pedal may overload the clutch.

Driving off on a gradient can be done using:

– The park brake, or
– Hill Start Aid.

NOTE: ***Driving off on a gradient is best done using Hill Start Aid.***

11

Before driving off

D002114

– Park brake is applied.
– Brake pedal is depressed.
– Rotary knob in position 'D' (or '**R**').

NOTE: When driving off on a gradient in too high a gear, AS Tronic does not change down automatically. If necessary, select a lower gear manually.
Changing down is only possible by either manually selecting a lower gear or releasing the accelerator pedal and directly operating it again. The automatic function shifts down to a lower gear.

Driving off using Hill Start Aid

Driving off on a hill is best done using Hill Start Aid. See section 'Hill Start Aid ' in chapter 'Driver assist systems'.

Driving off using the park brake

– Release the brake pedal.
– Accelerate (fully).
– Release the park brake when the vehicle is ready to drive off.

WARNING!
– ***If rolling is unwanted, depress the brake pedal if the accelerator pedal is not operated.***

If the accelerator pedal is not depressed, the vehicle may start to roll. If rolling is unwanted, this may lead to dangerous situations resulting in serious injury and damage to the vehicle.

Driving on a gradient

NOTE: If a gear change on a gradient is not preferred, choose the manual gear control mode. See section 'Manual gear control'.
Changing down is only possible by either manually selecting a lower gear or releasing the accelerator pedal and directly operating it again. The gearbox shifts down to a lower gear.

WARNING!
– ***If prolonged braking is necessary, use the engine brake or, if present on the vehicle, use the retarder.***

If the vehicle rolls and the rotary knob is in position 'N', the drive line is interrupted and engine braking is not possible. This may lead to dangerous situations resulting in serious injury or damage to the vehicle.

CAUTION: The vehicle speed may increase when travelling downhill. In fully automatic mode, the AS Tronic gearbox selects a higher gear to protect the engine against excessive engine speed. If the gearbox is in manual mode, the engine speed can exceed the maximum permitted engine speed. This can lead to serious damage to the engine.
– ***If the gearbox is in manual mode, select a higher gear manually to prevent the engine from exceeding the maximum engine speed (red area of the rev counter).***

CAUTION: The clutch slips continuously when driving in the manoeuvring mode. Driving in this mode may lead to clutch overload or damage.

- ***Only use the manoeuvring mode for actual manoeuvring.***
- ***Never use the manoeuvring mode for normal driving on a level road, on a gradient or when driving over heavy terrain.***
- ***The manoeuvring mode can be used only when driving on snowy roads when all traction increasing aids (for example increasing the wheel slip with the ASR switch, lifting the trailing axle) have been applied and the driven wheels still have no traction. Try to make a path by rocking the vehicle backwards and forwards. To do this select the alternating forward and reverse manoeuvring mode while giving a little throttle. Keep the vehicle in motion by using the moving weight of the vehicle. Only use the manoeuvring mode in this way for a few moments to avoid overloading the clutch.***

11.7 CLUTCH PROTECTION

Flashing gear indication on master display

A flashing gear indication may be displayed on the master display if the vehicle is at standstill for a prolonged period with a gear engaged. Relieve the clutch by setting the gearbox selector switch to N (neutral). If this is ignored, the gearbox will automatically shift to neutral (the flashing gear indication on the master display stays active). Before driving off again it is necessary to set the gearbox selector switch to N (neutral) first and subsequently select the desired gear.

Overload warning on master display

When the clutch is overloaded, a yellow warning **'Clutch overload'** appears in the master display.

Relieve the clutch by:

- increasing the vehicle speed (drive train is closed) by further pressing in the accelerator pedal.
- stopping the vehicle by releasing the accelerator pedal.
- manually selecting a lower gear.

CAUTION: If the driver ignores the warning message, the clutch is closed when the accelerator pedal is operated. This prevents further clutch overloading. This may cause the engine to stall and, as a result, the vehicle may start to roll if on a slope. When the accelerator pedal is released, the clutch opens again. When the clutch is overloaded in

manoeuvring mode, it engages quickly to prevent a further overload; however, this causes the vehicle to drive away roughly. This can lead to dangerous situations.

– Do not ignore the warning message and relieve the clutch.

11

Automatic gearbox 12

12.1 ALLISON 3000 SERIES

General

The Allison 3000 series automatic gearbox is fully electronically controlled. The automatic gearbox has five or six forward gears, depending on the vehicle configuration, and one reverse gear.
It is operated via the selector keypad. The selector keypad has a display located next to the driver's seat and replaces the gear change lever on manual gearboxes.

The selector has the following functions:

– engaging and disengaging gears
– choosing a shift program
– display of fault codes (DTC)

The selector has the following six keys:

D002108-2

Neutral	Neutral position
Drive	Automatic forward drive
Reverse	Reverse
MODE	Shift program selection
↑	Shifting up
↓	Shifting down

Selecting gears

Neutral position

No gear is engaged in the **'N'** position. The vehicle is **not** locked in this position and can therefore roll.

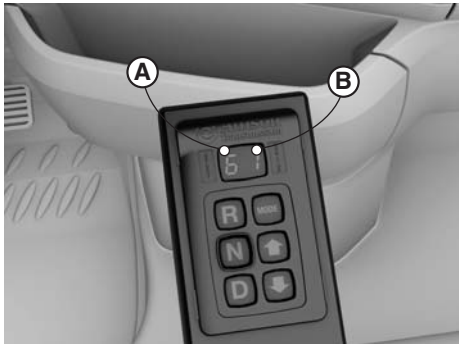
Use the park brake to lock the vehicle.

The letters **'NN'** appear in the display.

Automatic forward drive

If position **'D'** is chosen, the vehicle is immediately set in motion. (If the air supply system is pressurised and if the park brake is not on.) Depress the brake pedal before selecting position 'D'. In this position the gearbox shifts automatically.

In the selector display, the left number (A) displays the highest gear to which the gearbox shifts. The right number (B) displays the current engaged gear.



D002109

Reverse

If position **'R'** is chosen, the vehicle is immediately set in motion. Therefore depress the brake pedal before selecting position 'R'.

The letters **'RR'** appear in the display.

Shift program selection

By pressing the **'MODE'** key briefly once, another shift program can be selected from stationary and driving position. There are two options:

- **Normal program**
  This program is chosen automatically when the vehicle ignition has been switched off. The indicator light next to the 'MODE' key is not on. This program allows the gearbox to shift gears as and when necessary so that driving at higher speeds is possible. This may be advisable on unpaved terrain.
- **Economy program**
  The indicator light next to the 'MODE' key is on. This program will, in general, shift gears at somewhat lower engine speeds. This results in a more economical fuel consumption.

↓ Shifting down

After selecting the 'D' key and when the vehicle is driving, this key can be used to keep the gearbox in a lower gear. The selected gear is shown in the display. The gearbox will not shift up further until the '↑' or 'D' key is pressed. The left number in the selector display shows the highest gear to which the gearbox shifts.

↑ Shifting up

This key is used to allow the gearbox to shift to a higher gear. This is, however, only possible after having previously selected to stay in a low gear.

CAUTION: If the vehicle rolls off in the opposite direction to that of the engaged gear, the differential may be overloaded or damaged when the accelerator is pressed.

– ***Never press the accelerator when the vehicle rolls off in the opposite direction to that of the engaged gear.***

Use of the engine brake

When the engine brake is operated in third gear or higher, the electronics of the gearbox shifts down to second gear as soon as the engine speed permits it to do so. This is to allow the engine brake to deliver maximum braking force.

The right number on the selector display shows the second gear selected by the electronics of the gearbox.

Using PTO

If the vehicle is fitted with a PTO, this can be switched on in both neutral and first gear (depending on the version).

PTO operation is, however, not permitted in **'D'** when the vehicle is held stationary by the service brake or park brake. Depending on the version, the electronics of the gearbox shifts the gearbox to neutral to prevent overheating.

12.2 FAULT WARNING

If the transmission fault warning symbol in the master display lights up, the gearbox oil temperature is too high **or** there is a fault in the gearbox (shifting gears).

Oil temperature too high warning

The transmission oil temperature too high warning indicates that the gearbox oil has reached its maximum temperature. In this situation, the electronics of the gearbox limit gearbox shifting to the first four gears.

Drive to a safe place as soon as possible, select neutral and let the engine idle at an increased idling speed. As a result, the cooling system of the engine aims to cool the gearbox oil.
If, after approximately two minutes the warning in the master display has not disappeared, turn off the engine and consult a DAF Service dealer.

Transmission warning

The electronics of the gearbox block the functions of the selector lever and ensure that the gearbox selects a 'safe gear'. Drive the vehicle to a safe place as soon as possible and switch off the ignition. It is possible the gearbox no longer shifts the gearbox to neutral.

In some cases a gearbox fault can be reset by switching off the ignition for 30 seconds and then restarting the engine. If the transmission warning symbol does not disappear from the master display, consult a DAF Service dealer.

12

Air suspension 13

13.1 GENERAL

Vehicles with air suspension are equipped with an electronically controlled air suspension (ECAS).
On vehicles equipped with air suspension, a remote control unit is used to operate the vehicle height.
The remote control unit is located against the console of the driver's seat. This control unit can only be operated when the ignition is switched on and the vehicle speed is lower than 9 km/h.
The chassis height parameters are stored in the electronics of the air suspension. If the actual chassis height is not in conformity with the set parameters, the chassis adjusts itself. .

The remote control can be used to set the chassis to the most suitable height for:
– coupling or uncoupling a trailer
– loading or unloading the vehicle.

WARNING!
– ***Driving a vehicle that is not at normal driving height, other than for coupling and uncoupling a semi-trailer, is not permitted.***

Driving a vehicle that is not at normal driving height, other than for coupling and uncoupling a semi-trailer, can result in unstable vehicle behaviour. This can lead to dangerous situations and serious injury and damage to the vehicle. Also the legally permitted driving height can be exceeded.

WARNING!
– ***Always set the chassis in the lowest position during tipping and unloading heavy loads like containers.***

Unloading heavy loads from a vehicle with the air suspension not in the lowest position can result in an unstable vehicle during unloading. This can lead to dangerous situations and serious injury and damage to the vehicle.

13.2 REMOTE CONTROL

D002107

rear of truck selected

automatic setting of normal driving height

M1 lifting of chassis to pre-set height

M2 as M1, but for a different chassis height

lifting of selected chassis ends when the key is released

lowering of selected chassis ends when the key is released

Stop all adjustments are stopped.

13.3 ENGAGING AIR SUSPENSION

– Press the 'Vehicle rear' key; the relevant indicator light on the remote control comes on.
– If the drawn vehicle has air suspension as well, press the key for the relevant axle.

The choice can be cancelled by pressing the same key once again. If the air suspension continues adjusting during loading or unloading, press the 'stop' button. The vehicle stops readjusting.

D002107

13.4 STOP KEY

When the 'Stop' key on the remote control unit is pressed, the system responds as follows, irrespective of the vehicle speed:

– When the chassis height changes, the electropneumatic valves are cut-out immediately. The height at that moment is now the desired height.
– If the 'Stop' key is pressed while switching off the ignition, the delay setting is activated. When this setting is activated, the height adjustment remains active for 60 minutes when the ignition is switched off or until the air supply has become insufficient.

Unless stated otherwise, the keys need only be pressed once briefly.

13.5 SETTING MEMORY KEYS (M KEYS)

– Bring the chassis to the desired height using the keys 'Lower chassis' and 'Lift chassis'.
– Press the **'Stop'** key and keep it depressed.
– Press either of the **M** keys briefly. The momentary chassis height is programmed in the ECAS unit.

If this M key is pressed again, the vehicle adjusts itself to this programmed chassis height.
A different chassis height can be programmed with the other M key in the same way.

13

Emergency repairs 14

14.1 VEHICLE TOOL KIT

All vehicles are fitted with a tool bag in the cab and a jack in the storage compartment to the left of the wheel winch.

WARNING! When the jack is not stored in the storage space, it can come loose during driving. This can lead to dangerous situations and serious injury.

– ***After use, always stow the jack carefully in the storage compartment.***

14.2 TILTING THE CABIN

WARNING! Several parts of the engine are moving when the engine is running. Coming into contact with these moving parts can result in serious injury.

– ***Only tilt the cabin when the engine has stopped.***

WARNING! If the vehicle has been involved in a collision, under no circumstances must the cabin be tilted without due precautions. The internal mechanism of the lifting cylinder may have been damaged to such an extent that the cylinder is no longer locked by the internal stop collar. There is a risk that the cabin could be in the unlocked tilt position. In that case, there is a danger of the cabin no longer being held back and falling forward to the ground. This can lead to dangerous situations and serious injury.

– ***Have a DAF Service dealer check the tilting mechanism after a collision.***

WARNING! If there are people in or immediately in front of the cabin, the cabin must under no circumstances be tilted. This can lead to serious injury.

– ***Make sure that there is no one in the cabin.***

– ***Make sure that there is no one immediately in front of the cabin.***

WARNING! Working under a cabin that is not fully tilted is very dangerous. There is a risk that a cabin that is in the unlocked back tilt position is no longer being held forward and could fall backward, thus catching the person working underneath it. This can lead to dangerous situations and serious injury.

– ***Always tilt the cabin fully forward when working under the cabin.***

CAUTION: A tilted cabin needs sufficient space in front of and above the vehicle. Tilting a cabin in a place without sufficient space may damage the cabin and nearby objects.

– ***Make sure that there is sufficient clearance around the cabin before tilting it.***

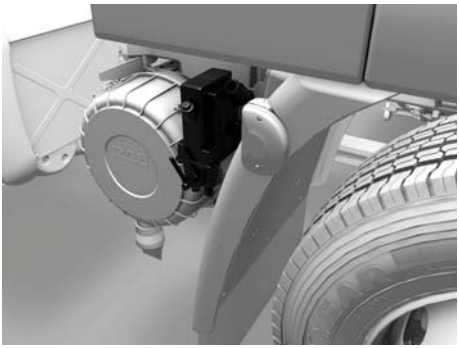
CAUTION: If there are any loose objects in the cabin, the cabin must not be tilted under any circumstances. This can lead to damage to the cabin, the windscreen, and the loose object.
– Make sure that there are no loose objects in the cabin.

If a cooler box or refrigerator has been fitted, switch it off and, if necessary, unplug it before tilting (depending on the type). The cooler box or refrigerator must remain switched off for at least 30 minutes after the cabin has been tilted back.

The cabin is tilted hydraulically using a hand pump. This pump is located at the co-driver's side, behind the cabin. The pump has a cock which can be moved to two positions:

Position ↑ to tilt the cabin forwards.

Position ↓ to tilt the cabin backwards; this is also the driving position.



D002028

Tilting the cabin forward

– Apply the parking brake.
– Put the gear lever in 'neutral' position.
– Close the doors.
– Turn the lever fully to the right, against the spring pressure, until it is locked in position ↑; use the jack rod.
– Operate the pump so that the cabin tilts forward. The cabin locking mechanism automatically releases. As soon as the cabin passes its natural point of balance, the force of gravity will gradually tilt the cabin further forward without additional pumping.

NOTE: Forward tilting can be stopped at any time by turning the valve to position ↓, or stop pumping.

Tilting the cabin backward

– Turn the lever to position ↓.
– Tilt the cabin back by operating the pump with the jack rod. The last part of tilting back is affected by the cabin's own weight. When the catch engages, the cabin is automatically locked.
– Leave the lever in position ↓.
– Push the gear lever in 1st gear to lock the gearbox control.
– Put the gear lever in neutral.

NOTE: Back tilting can be stopped at any time by turning the valve to position ↑, or stop pumping.

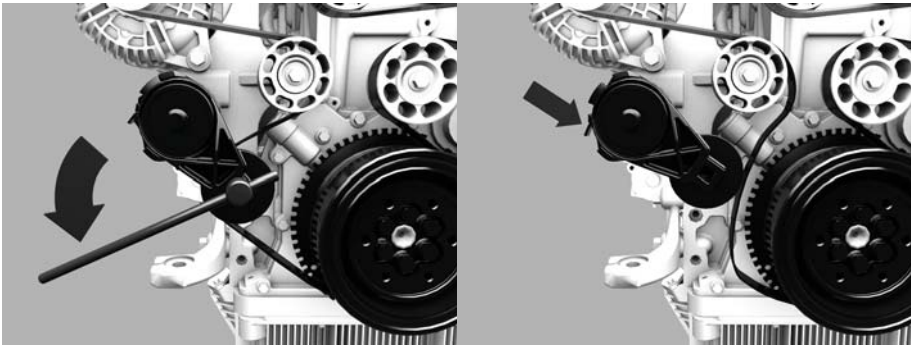
Checking the cabin locking

When the cabin is not fully at its normal driving position (locked), the **'Cabin lock open'** warning is active on the master display.

14.3 REPLACING THE POLY-V-BELT

Important
Always fit the same type of poly-V-belt as the one being replaced.

Removal and installation of the poly-V-belt on the PX-5 engine



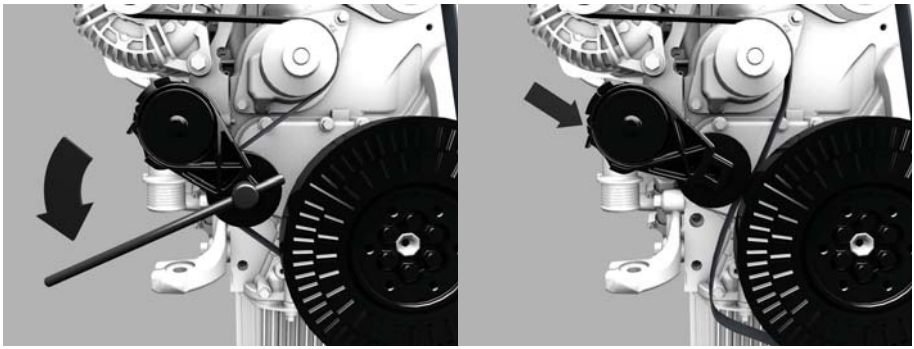
D002136-2

NOTE: Always fit the same type of poly-V-belt as the one being replaced.

1. Disconnect the earth cable from the battery.
2. Place a ratchet with a 1/2" socket in the arm of the automatic belt tensioner.
3. Slacken the poly-V-belt so that it can be removed from the pulleys.
4. Carefully allow the automatic belt tensioner to spring back to the stop.
5. Push the poly-V-belt between the fan and the wind tunnel collar and remove the poly-V-belt.
6. Check all pulleys over which the poly-V-belt runs for dirt, rust and damage.
7. Fit a new poly-V-belt between the fan and wind tunnel collar. Place the poly-V-belt over as many pulleys as possible.
8. Tension the automatic belt tensioner and place the poly-V-belt over the remaining pulleys. Carefully allow the automatic belt tensioner to spring back against the new poly-V-belt.

9. Check that the poly-V-belt is in all pulley grooves.
10. Connect the earth cable to the battery.

Removal and installation of the poly-V-belt on the PX-7 engine



D002142-2

NOTE: Always fit the same type of poly-V-belt as the one being replaced.

1. Disconnect the earth cable from the battery.
2. Place a ratchet with a 1/2" socket in the arm of the automatic belt tensioner.
3. Slacken the poly-V-belt so that it can be removed from the pulleys.
4. Carefully allow the automatic belt tensioner to spring back to the stop.
5. Push the poly-V-belt between the fan and the wind tunnel collar and remove the poly-V-belt.
6. Check all pulleys over which the poly-V-belt runs for dirt, rust and damage.
7. Fit a new poly-V-belt between the fan and wind tunnel collar. Place the poly-V-belt over as many pulleys as possible.
8. Tension the automatic belt tensioner and place the poly-V-belt over the remaining pulleys. Carefully allow the automatic belt tensioner to spring back against the new poly-V-belt.
9. Check that the poly-V-belt is in all pulley grooves.
10. Connect the earth cable to the battery.

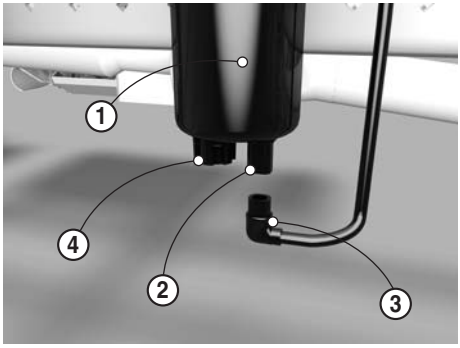
14.4 REPLACING FUEL PREFILTER AND MOISTURE SEPARATOR

WARNING! Diesel is a toxic fluid. Physical contact can lead to serious health problems.
- ***Avoid direct contact.***
- ***If there is skin contact: remove the substance with paper or a cloth, wash with soap and water. If the irritation persists, consult a doctor.***
- ***If there is contact with the eyes: rinse with plenty of water for at least 15 minutes and consult a doctor.***
- ***If swallowed: do NOT induce vomiting. Rinse the mouth, drink plenty of water and consult a doctor.***
- ***In the event of inhalation: get some fresh air, rest and consult a doctor.***

WARNING! Fuel is flammable and toxic.
- ***Collect the fuel that escapes.***
- ***Avoid sparks and open flames in the vicinity of fuel.***

CAUTION: Dirt in the fuel system can lead to significant damage to the fuel system.
- ***Work cleanly when working on the fuel system.***
- ***Clean the vicinity of the fuel system components before starting any activities on them.***

The fuel prefilter and moisture separator is fitted against the chassis member behind the fuel tank.



D002120

Removing the prefilter and moisture separator

1. Remove the fuel tank cap to let the overpressure escape from the tank.
2. Place a receptacle underneath the filter element.
3. Drain the filter element via the drain plug (4).
4. Remove the connector (3) from the water-in-fuel sensor (2).
5. Remove the filter element (1) by turning it anti-clockwise (seen from the bottom).

Installing the prefilter and moisture separator

1. Fit the fuel tank cap.
2. Check by hand whether the coupling piece for the filter element attachment is securely attached.
3. Prefill the filter element (1) with clean fuel.
4. Lightly lubricate the sealing ring with clean engine oil.
5. Tighten the filter element (1) until the sealing ring abuts. Tighten the filter element a further ½ to ¾ turn by hand.
6. Fit the connector (3) to the water-in-fuel sensor (2).
7. Bleed the fuel system. See chapter 'Bleeding the fuel system'.
8. Start the engine and check for leaks. If necessary, retighten the filter by hand.

14.5 BLEEDING THE FUEL SYSTEM

WARNING! Diesel is a toxic fluid. Physical contact can lead to serious health problems.

- ***Avoid direct contact.***
- ***If there is skin contact: remove the substance with paper or a cloth, wash with soap and water. If the irritation persists, consult a doctor.***
- ***If there is contact with the eyes: rinse with plenty of water for at least 15 minutes and consult a doctor.***
- ***If swallowed: do NOT induce vomiting. Rinse the mouth, drink plenty of water and consult a doctor.***
- ***In the event of inhalation: get some fresh air, rest and consult a doctor.***

WARNING! Fuel is highly flammable and can cause fire or an explosion resulting in serious injury.

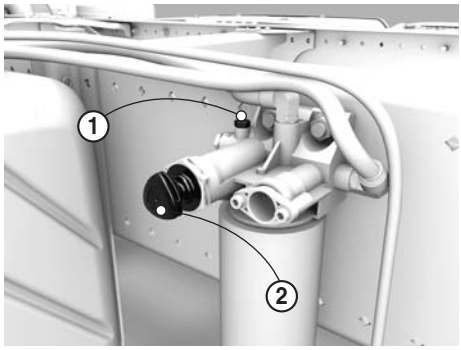
- ***Collect the fuel that escapes.***
- ***Avoid sparks and open flames in the vicinity of fuel.***

14

When the hand priming pump is used, the fuel system is bled automatically. The hand priming pump is fitted against the chassis member behind the fuel tank.

1. Loosen the hand priming pump knob (2) anti-clockwise.
2. Use the hand priming pump until a clearly higher resistance is felt.

NOTE: Stop pumping as soon as the higher resistance is felt. If you continue pumping, the fuel system may become internally damaged.



D002125

3. Secure the hand priming pump knob by turning it clockwise.
4. Start the engine and let it idle for at least one minute.

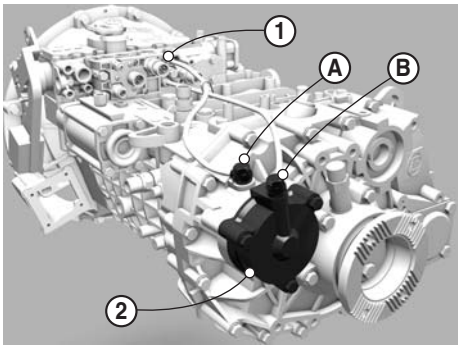
NOTE: If the fuel tank has been running dry, the bleeding plug (1) can be loosened first to bleed the moisture separator. Tighten the plug when fuel flows from the plug.

14.6 GEARBOX LOW-RANGE PROTECTION

ZF gearbox

Interchange the air line connections (A and B) on the low range cylinder (2) when the low range can no longer be used as a result of a failure. Only the lowest four gears are now available. The integrated low-range protection valve (1) is located on the top of the gearbox.

Have a DAF Service dealer correct the problem as soon as possible.

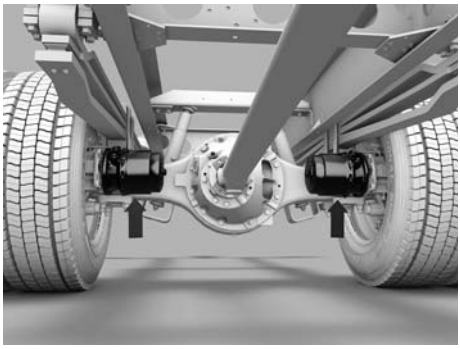


D002053

14.7 RELEASING THE PARKING BRAKE

WARNING!
– ***Never release the park brake on an incline without precautionary measures.***

Releasing the park brake on an incline causes the vehicle to move unintentionally. This can lead to serious injury and damage to the vehicle.


D002029

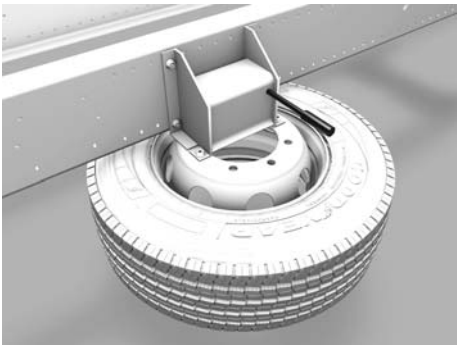
1. Place wheel chocks in front of and behind the wheels.

*NOTE: It is **not** permitted to use a socket wrench to loosen the releasing bolt.*

2. Turn the releasing bolt anti-clockwise as far as the stop using a ring spanner.

3. Carry out this operation for each spring brake cylinder.
4. Bring the park brake back in operating order by turning the releasing bolts clockwise as far as possible and tightening them to a torque of 70 Nm.

14.8 SPARE WHEEL WINCH



D002030

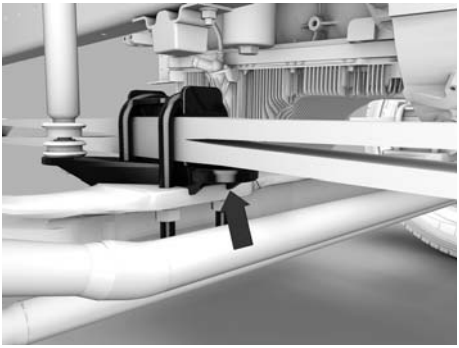
Self-braking wheel winch

1. Remove the wheel nut covers.
2. Unscrew the spare wheel nuts.
3. Lower the spare wheel.

NOTE: Always fit the wheel on the spare wheel bracket with the valve facing outwards.

14.9 JACKING UP THE FRONT AXLE

When jacking up the front axle, position the jack under the special shock absorber attachment bracket.



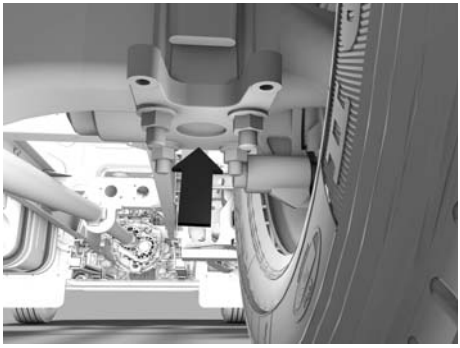
D002032

WARNING! Not using the indicated vehicle jacking points and failing to support the vehicle when jacking up can lead to the vehicle falling off the jack. This can lead to dangerous situations and serious injury, result in a jammed jack or the vehicle can be damaged.

- ***Always use stands to support the chassis when carrying out repairs or service under a vehicle which rests on a jack.***
- ***Do not carry out any work underneath a vehicle that is only supported by a jack or lifting gear.***

14.10 JACKING UP THE REAR AXLE

When jacking up the rear axle, always position the jack under the jacking point at the bottom of the spring bracket when the rear axle must be jacked up.



D002034

WARNING! Not using the indicated vehicle jacking points and failing to support the vehicle when jacking up can lead to the vehicle falling off the jack. This can lead to dangerous situations and serious injury, result in a jammed jack or the vehicle can be damaged.

- ***To prevent deformation of the axle housing, the jack must under no circumstances be located directly under the axle housing or the differential casing.***
- ***Always use stands to support the chassis when carrying out repairs or service under a vehicle which rests on a jack.***
- ***Do not carry out any work underneath a vehicle that is only supported by a jack or lifting gear.***

14.11 CHANGING WHEELS

WARNING! Tension can be present in a cracked or damaged rim that holds an inflated tyre. The tyre or rim may crack or burst when the wheel is changed. This can lead to dangerous situations and serious injury.

- ***Always deflate the tyre and remove the tyre valve if a wheel with a cracked or damaged rim is removed.***

– Only use the original DAF rims specified for the vehicle concerned.

– Make sure that tyres of the same type and size are fitted on both sides of the axle.
– Always observe the tyre load capacity and speed index required.
– Insufficient cleaning of the mating surfaces and/or uneven tightening of the wheel nuts may cause vibrations during driving or braking.

NOTE: If a wheel stud is replaced, check the other wheel studs on the relevant wheel hub, and if necessary, replace the other wheel studs. Check the wheel nut of the replaced wheel stud. If in doubt, replace the wheel nut.

Removing wheels

1. Chock the wheels to prevent the vehicle moving off.
2. Clean the screw thread of the wheel studs with a wire brush.
3. Oil the wheel studs sparingly.
4. Loosen the wheel nuts a few turns.
5. Fit a jack under the jacking point at the wheel to be replaced.
6. Jack up the vehicle and place a support under the axle.
7. Remove the wheel nuts and take the wheel off the hub.

Installing wheels

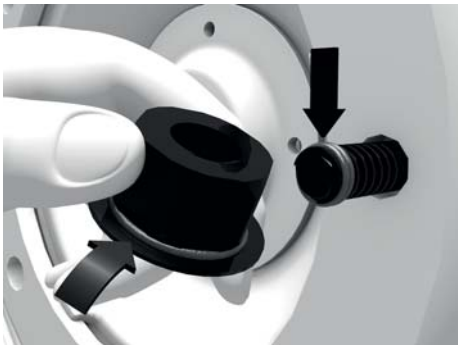
1. Clean the fitting edge of the wheel hub by scraping off dirt and corrosion with a scraper.
2. Apply a **thin** layer of grease to the fitting edge of the wheel hub.

D001643

3. Also apply a **thin** layer of grease to the fitting edge of the rim. This grease layer must prevent the rim and the wheel hub from becoming 'rust-bound'.
4. Check whether the contact surfaces of the rim and the drum brake are clean. Clean them if necessary.

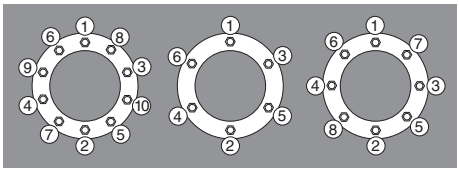
D001644

5. Clean the wheel nuts and then apply a drop of oil between the thrust washer and the nut.
6. Also apply a drop of oil to the first turn of the wheel stud screw threads.



D001645

7. Fit the wheel nuts and tighten them evenly according to the sequence in the illustration.
   See chapter 'Technical data' for the specified tightening torque.
8. Check the tyre pressure.



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9. **Re-torque the wheel nuts after 100 km.**
   If new wheel studs are fitted, the nuts need additional re-torquing after 500 km.

NOTE: After replacing a wheel, have the wheel nuts torqued to the correct tightening torque with a torque wrench.
Always tighten and retighten wheel nuts in cold conditions. However, avoid tightening wheel nuts in extreme cold.

WARNING!
- ***Re-torque the wheel nuts after 100 km, after a wheel change or if the wheel nuts have been loosened.***
- ***If new wheel studs are fitted, the nuts need additional re-torquing after 500 km.***

A wheel that rolls off a vehicle can lead to dangerous situations resulting in serious injury and damage to the vehicle.

Tyre diameters

WARNING!

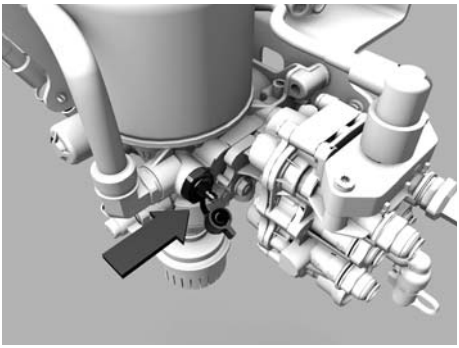
- ***Always use a tyre of the same size and load capacity as the removed tyre.***
  If the tyre size is correct, check the tyre pressure of the spare or replacement tyre.
- ***If the ABS warning remains active after a short drive, follow the instructions mentioned in the section 'System warnings' of the chapter 'Master display'.***

If the difference in tyre diameter is too large, the EBS brake system generates a warning symbol on the master display. The ABS function and VSC disengage automatically. Ignoring this warning may lead to a longer braking distance, unstable brake behaviour and unstable vehicle behaviour during critical driving situations. This can lead to very dangerous situations.

NOTE: Depending on the tyre types on the vehicle, an EBS warning may already be shown on the master display with a worn tyre that is under-inflated by 2 bar. So first check the tyre pressure when a warning is displayed after a tyre has been replaced.

14.12 TYRE INFLATING CONNECTION

The tyre inflating connection is located on the brake system air dryer to the left rear of the cabin on the inside of the chassis member.



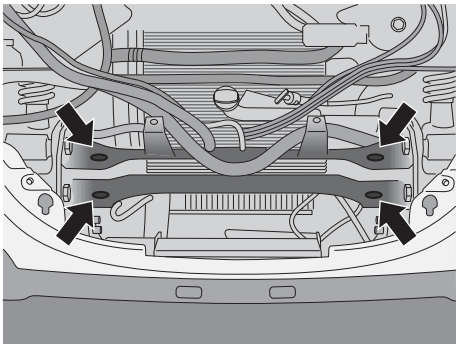
D002126

Make sure that the supply pressure on the pressure gauges is not the maximum pressure, but approximately 8-9 bar.
Inflate tyres with the engine running.
See chapter 'Technical data and identification' for the correct tyre pressures.
Refit the rubber cap of the tyre inflating connection after the tyre has been inflated.

NOTE: The tyre inflating connection can also be used as an external inflating connection to fill the air pressure system with air from outside. When doing this, check that the system pressure is correct using the air pressure gauge.

14.13 TOWING

It is possible to install a towing eye behind the grille.
Always use a towing bar when towing. Deviation from this rule is only allowed in emergencies.
When towing, the fault messages may appear in the master display when the ignition is switched on.



D002056

NOTE: The maximum permissible vehicle speed, weight and distance vary per country.

Tractors may be fitted with a small towing hook at the rear end of the chassis. Use this towing hook only for light shunting work.

Being towed by another vehicle

WARNING! Towing a fully loaded vehicle or a vehicle with trailer attached can result in unstable vehicle behaviour during critical driving situations applying to the towing and/or towed vehicle. This can lead to very dangerous situations. High forces and tensions in the chassis and drive line of the vehicles can also lead to damage to the vehicles.

– ***Do not tow the vehicle when fully loaded or with a trailer attached.***

WARNING! The towed vehicle can be located asymmetrically (left or right) behind the tractor. Towing at an angle larger than 20° with the vehicle centreline can result in unstable vehicle behaviour for the towing and/or towed vehicle during critical driving situations. This can lead to very dangerous situations. High forces and tensions in the chassis and drive line of the vehicles can also lead to damage to the vehicles.

– ***Towing may not take place at an angle larger than 20° with the vehicle centreline.***

WARNING! When the engine is not running during towing and no additional measures are taken, there is no power steering and no air is supplied to the braking system. This results in difficult steering and

increased brake pedal force and ultimately leads to automatic engagement of the parking brake. This can lead to very dangerous situations.

- ***Short distance towing: Release the parking brake, see 'Releasing the parking brake' and adapt the driving style of the towing combination.***
- ***Long distance towing: Use a recovery vehicle.***

- To clear the towing eyes, remove the black grid from the lower grille by turning the attachment screws a quarter turn.
- Always fix the tow rod with its original attachment pin (part of the vehicle tool kit) in the towing eyes.
- Turn the ignition key so that the steering wheel is released (unless the vehicle is in a hoist, see below).
- If there is insufficient pressure in the air reservoirs, release the parking brake. See section 'Releasing the parking brake'.
- To prevent damage to the gearbox, always **disconnect the propeller shaft** from the differential.

D002057

CAUTION: If the propeller shaft remains connected during towing, the gearbox may be seriously damaged.

- ***Always disconnect the propeller when the vehicle is being towed.***

If the differential is damaged:

- Hoist the vehicle at the rear and **lock the steering wheel in the straight-ahead position**.

Long-distance towing

If the vehicle must be moved over a larger distance, this must be done by a recovery vehicle that lifts the vehicle to be towed under its front axle. Do not run the engine because of the risk of engine lubrication failure.

Tow starting

If the vehicle must be towed to start the engine, the ignition key must first be turned clockwise to position D, ignition on.

NOTE: Vehicles with an AS Tronic Lite gearbox or automatic gearbox cannot be towed to start the engine.

14.14 JUMP-STARTING

CAUTION: Starting the vehicle using a starting aid with too high a voltage can damage the electrical components.
- ***Never jump-start the engine with a fast charger.***
- ***Never jump-start the vehicle with a voltage higher than 28 V.***

CAUTION:
- ***Do not disconnect the battery cables while the engine is running.***

Disconnecting the battery cables while the engine is running can damage the electrical components.

Battery systems

The vehicle is equipped with a regular battery system with a set of two 12 Volt batteries.

The engine may be started with the aid of starter cables that use power from:
- separate auxiliary batteries (approximately 24 V), or
- another vehicle with a running engine (approximately 28 V).

When this starting procedure is followed, the battery cables must not be disconnected.
The battery box can be placed in two positions: beside the chassis or at the rear of the chassis.

Battery box beside the chassis

Remove the battery box cover.
Connect the starter cables to the positive pole (+) first and then to the negative pole (–).
To disconnect, release the negative pole (–) first and then the positive pole (+).
When the batteries are **fully** discharged and the engine is running, it is important that the starter cables are **not immediately** disconnected. The engine must run for at least 2 to 3 minutes before the starter cables are disconnected to prevent damage to the electrical system (peak voltage!).

Proceed as follows as soon as the engine starts running:
- Switch on as many power consumers as possible (for example: headlights, fog lamps, heater fan and so on).
- Remove the starter cables after the engine has run for 2 to 3 minutes.
- Switch off the consumers.

14.15 CHARGING BATTERIES

Battery system

The vehicle is equipped with a set of two 12 Volt batteries.

WARNING!
- ***Always charge batteries in a properly ventilated area.***
- ***Avoid sparks and open flames in the vicinity of batteries.***

Sparks and open flames in the vicinity of a battery can lead to an explosion which can cause serious injury.

WARNING!
- ***Always thaw out batteries before charging them.***
- ***Remove all battery filler caps before charging.***

Charging frozen batteries can lead to an explosion which can cause serious injury.

CAUTION: Only use fast charging in an emergency. Fast charging requires disconnection of both battery cables, otherwise the electronics may become defective.

Charging a regular battery system

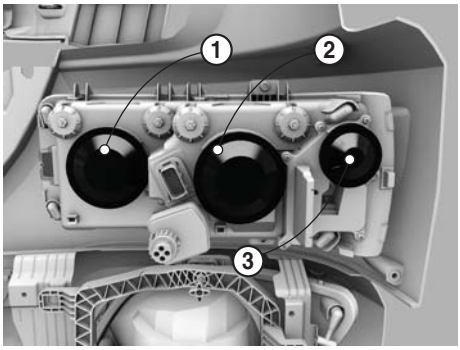
The battery box can be placed in two positions: beside the chassis or at the rear of the chassis.

Battery box beside the chassis

Remove the battery box cover.
Connect the positive pole (+) of the battery charger to the positive pole (+) of the battery first and then connect the negative pole (–) to the negative pole (–).
After charging, switch off the battery charger and then disconnect the negative pole (–) first and subsequently the positive pole (+).

14.16 REPLACING BULBS

- Do not touch the glass of the halogen lamps with bare fingers. If necessary, this glass can be cleaned with a cloth dampened with industrial alcohol (methylated spirits).
- When fitting a new bulb, make sure that the lugs on the bulb holder engage in the slots of the reflector.



D002058

Dipped beam

1. Tilt the cabin forwards.
2. Detach the rubber cover (2) from the rear of the headlamp unit.
3. Detach the spring clamp and pull the bulb away from the reflector.
4. Detach the double plug from the rear of the bulb.

Marker light

1. Tilt the cabin forwards.
2. Detach the rubber cover (2) from the rear of the headlamp unit.
3. Pull the holder of the marker light from the headlamp unit.
4. Pull the bulb out of the bulb holder.

Main beam

1. Tilt the cabin forwards.
2. Detach the rubber cover (1) from the rear of the headlamp unit.
3. Detach the spring clamp and pull the bulb away from the reflector.
4. Detach the spring clamp and pull the bulb away from the reflector.

Direction indicator

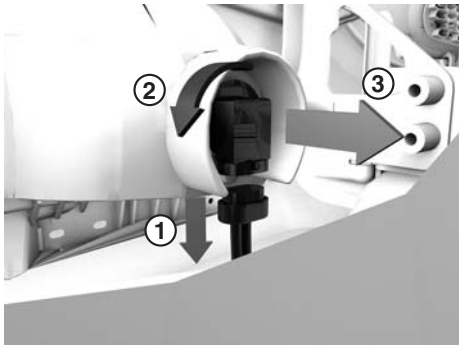
1. Tilt the cabin forwards.
2. Detach the plug from the rear of the bulb holder (3).
3. Screw the bulb holder anti-clockwise out of the headlamp unit.
4. Pull the bulb carefully out of the bulb holder.

Front fog light and/or cornering light

1. Tilt the cabin forwards.
2. Lift the connector lock and remove the connector. See arrow at position 1.
3. Rotate the bulb fitting anti-clockwise. See arrow at position 2.
4. Pull the bulb fitting out of the reflector. See arrow at position 3.
5. Replace the bulb.
6. Push the bulb fitting into the reflector and rotate the holder clockwise to secure it.

NOTE: Make sure the bulb fitting clicks into position.

7. Fit the connector.



D002210-2

Rear lights

LED rear lights are optional.

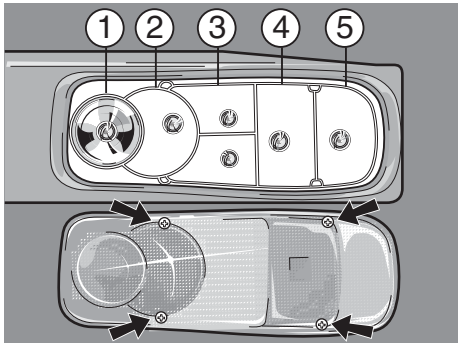
NOTE: Make sure that the LED rear lights stay clean for optimum visibility.

CAUTION:
– ***If LED lighting is defective, contact the nearest DAF Service dealer.***

You cannot replace defective LED lighting yourself.

1. Unscrew the four Phillips screws and remove the lens cap.

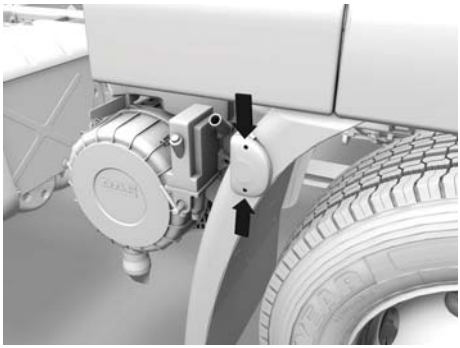
1 Fog light
2 Reversing light
3 Rear light
4 Stop light
5 Direction indicator



D000628-2

Direction indicators

1. Detach the plug on the inside of the wheel arch.
2. Remove the two screws and detach the lamp unit of the direction indicator.
3. Unscrew the bulb holder anti-clockwise out of the indicator lamp unit.
4. Pull the bulb carefully out of the bulb holder.



D002060

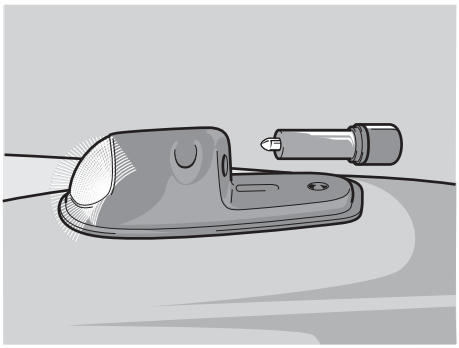
Stepwell lighting

1. Remove the stepwell lighting housing from the bottom of the door by inserting a screwdriver in the notch.
2. If necessary, remove the plug.
3. Unscrew the bulb holder anti-clockwise out of the stepwell lighting housing.
4. Pull the bulb carefully out of the bulb holder.

D002062

Contour lighting

1. Unscrew the bulb holder anti-clockwise from the housing.
2. Pull the bulb out of the bulb holder.

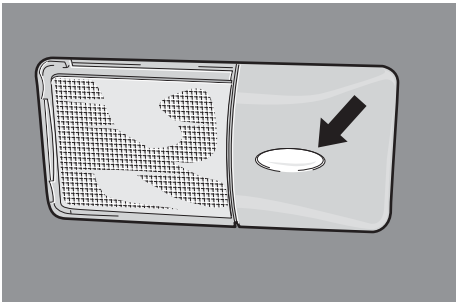


D000580-2

Interior lighting/reading lamp

The transparent covers of the interior lighting/reading lamp have a slot allowing the cover to be tilted out of the housing using a screwdriver.

1. Insert a screwdriver into the groove of the correct lens. Press in the internal attachment slightly. Then pull the lens carefully down and out of the lighting unit.
2. Remove the bulbs carefully from the bulb holder.



D001197

14.17 FUSES

WARNING! Replacing a blown fuse with one of a higher rating can result in an overload in an electrical circuit and cause a fire. This can lead to serious injury and damage to the vehicle.

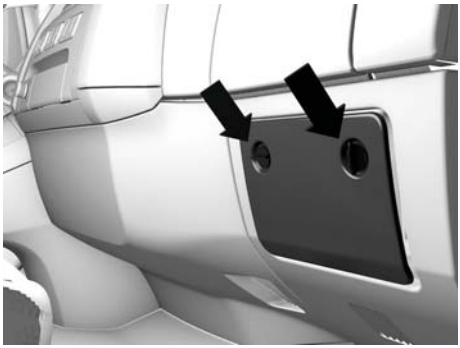
- ***Never replace a blown fuse with one of a higher rating.***
- ***Always consult the fuse and relay label inside the fuse box for the correct fuse value.***
- ***If a fuse keeps blowing repeatedly, this indicates that the power consumption is too high or that there is a fault in the circuit. A DAF Service dealer must check the electrical circuit as soon as possible.***

CAUTION: Replacing a fuse without observing the safety procedures can lead to damage to electrical components or vehicle electronics.

- ***Never replace a fuse while:***
  - ***The ignition is switched on.***
  - ***The engine is running.***
  - ***A consumer is switched on.***

Fuse box

The fuses are behind a cover in the dashboard on the co-driver's side. Attached to the inside of the cover is a sticker with an overview of the fuses.

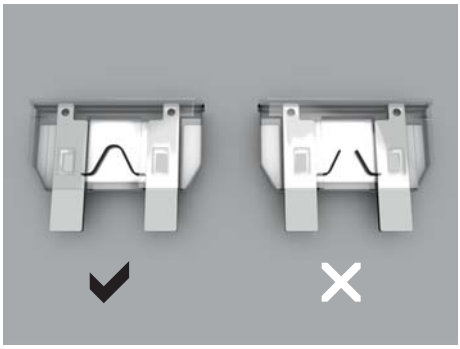


D002068

Fuses

CAUTION: Replacing a fuse without observing the safety procedures can lead to damage to electrical components or vehicle electronics.

- ***Never replace a fuse while:***
  - ***The ignition is switched on***
  - ***The engine is running***
  - ***A consumer is switched on.***



D001705

There is a special fuse clamp on the fuse board for replacing fuses.
Always consult the fuse and relay label inside the fuse box cover for the correct fuse value.

Each fuse is colour-coded as follows to show the rating:

Fuse colour-coding

Brown	5 A	mini blade type
Red	10 A	mini blade type
Blue	15 A	mini blade type
Yellow	20 A	mini blade type
Light brown	25 A	mini blade type
Green	30 A	mini blade type
Orange	40 A	ATO blade type

Technical data and identification 15

15.1 TECHNICAL DATA

15.1.1 Engine

PX-5 engine

PX-5 engine types	PX-5.112 PX-5.135 PX-5.157
Emissions standard (X):	Euro 6
Version	Water-cooled, four-stroke diesel engine with electronically controlled injection system and four valves per cylinder. Turbo-intercooling with Variable Turbo Geometry (VTG).
Number of cylinders	4 cylinders in line
Bore x stroke	107 x 124 mm
Swept volume	4.5 litres
Idle engine speed	700 rpm
Maximum loaded engine speed	

Output and torque

Type	P (kW/hp)	N_p (rpm)	M (Nm)	n_M (rpm)
PX-5.112	112/150	1800 - 2300	580	1100 - 1800
PX-5.135	135/180	1800 - 2300	700	1200 - 1800
PX.5-157	157/210	2000 - 2400	760	1300 - 2000

15

P (kW/hp)	Maximum output
N_p (rpm)	Engine speed at maximum output
M (Nm)	Maximum torque
n_M (rpm)	Engine speed at maximum output

Lubrication system

Service capacity, including oil filter	17,5 litres
Sump capacity, maximum level	17 litres
Sump capacity, minimum level	15,5 litres

Cooling system

Capacity of cooling system, including heater	21 litres

PX-7 engine

PX-7 engine types	PX-7.164 PX-7.186 PX-7.208 PX-7.231
Emissions standard (X):	Euro 6
Version	Water-cooled, four-stroke diesel engine with electronically controlled injection system and four valves per cylinder. Turbo-intercooling with Variable Turbo Geometry (VTG).
Number of cylinders	6 cylinders in line
Bore x stroke	107 x 124 mm
Swept volume	6.7 litres
Idle engine speed	700 rpm
Maximum loaded engine speed	

Output and torque

Type	P (kW/hp)	N_p (rpm)	M (Nm)	n_M (rpm)
PX-7.164	164/223	1800 - 2300	850	1100 - 1800
PX-7.186	186/253	1800 - 2300	950	1100 - 1800
PX-7.208	208/283	2000 - 2300	1020	1200 - 2000
PX.7-231	231/314	2000 - 2300	1100	1200 - 2000

P (kW/hp)	Maximum output
N_p (rpm)	Engine speed at maximum output
M (Nm)	Maximum torque
n_M (rpm)	Engine speed at maximum output

Lubrication system

Service capacity, including oil filter	24,2 litres
Sump capacity, maximum level	23,5 litres
Sump capacity, minimum level	21,6 litres

Cooling system

Capacity of cooling system, including heater	22,5 litres

Emission Aftertreatment System general

Emission Aftertreatment System	Exhaust Gas Recirculation (EGR). Selective Catalyst Reduction (SCR) catalyst with urea (AdBlue) dosing system, combined with Diesel Particulate Filter (DPF)

15.1.2 Electrical system

Voltage	24 V
Alternator	80 A / 29 V (extra: 100 A / 29 V)
Regular battery system	2 x 12 V / 125 Ah
Extra batteries	2 x 12 V / 170 Ah
Starter motor	4 kW / 24 V

Bulbs

Dipped beam	halogen bulb H7 70 W
Main beam	halogen bulb H1 70 W
Rear light	spherical bulb 5 W
Rear fog light	spherical bulb 21 W
Reversing light	spherical bulb 21 W
Brake light	spherical bulb 21 W
Direction indicator	spherical bulb 21 W (orange)
Marker lights	spherical bulb 5 W
Side marker light	spherical bulb 3 W
Stepwell lighting	spherical bulb 5 W
Marker light	spherical bulb 5 W
Front fog and/or cornering light	halogen bulb H11 70 W
Spotlight	halogen bulb H1 70 W
Work light, white	halogen bulb H3 70 W
Work light, yellow	spherical bulb 35 W
Interior lighting, white	spherical bulb 21 W
Interior lighting, amber	spherical bulb 10 W
Interior lighting, doors, amber	3 W
Interior lighting, centre console, amber	3 W
Bunk lamp	spherical bulb 10 W

Ignition key/hand-held transmitter (remote control)

– Expected battery lifetime 3 years minimum.
– Battery type: 3 volt Lithium battery (CR2032).

15.1.3 Symbols label fuse box

1	Air conditioning system
2	Trailing axle
3	Cargo lift active
4	ECAS manoeuvre level
5	Pre-selection main beam
6	Key
7	Ignition switch accessories
8	Heated air dryer
9	Cabin suspension
10	Refrigerator
11	No-idle heat
12	Electronically controlled multi-axle steering
13	Ignition relay
14	DPF regeneration

15	Transmission automatic mode
16	Retarder
17	Cross-axle differential lock
18	Inter-axle differential lock
19	Advanced emergency brake system
20	Roof hatch
21	ECAS 2 levels / air glide
22	Rotating (overhead warning) light
23	Working light
24	ABS truck
25	ABS trailer
26	Marker lights
27	Truck phone
28	Parking brake
29	Engine
30	Headlight washer
31	Fuel heater
32	On-board diagnostics
33	Interior heating
34	Exterior rear-view mirror heating, vertical type
35	Outlet BBM
36	Radio
37	Window lift, power operated
38	Horn
39	Switches
40	Converter 24V / 12V
41	Body Builder Module
42	Power supply trailer
43	Air processing unit
44	Toll Collect
45	Vehicle Intelligence Centre and/or electrical systems general
46	Engine start (turnover)
47	DAF Instrument Panel
48	Theft protection

49	Tachograph
50	Reverse light
51	Outlet accessories
52	Exterior main rear-view mirror adjustment
53	Tool compartment or service light
54	Electric light controller and/or master light
55	Seat
56	Trailer recognition
57	Outlet cabin 24V
58	Outlet cabin 12V
59	Windscreen wiper
60	Windscreen washer and wiper

15.1.4 Wheels

WARNING! A wheel that rolls off a vehicle can lead to dangerous situations resulting in serious injury and damage to the vehicle.

- ***Re-torque the wheel nuts after 100 km, after a wheel change or if the wheel nuts have been loosened.***
- ***If new wheel studs are fitted, the nuts need additional re-torquing after 500 km.***

NOTE: If a wheel stud is replaced, check the other wheel studs on the relevant wheel hub, and if necessary, replace the other wheel studs. Check the wheel nut of the replaced wheel stud. If in doubt, replace the wheel nut.

Tightening torque:

Version with six M18 wheel nuts	370 Nm
Version with eight M18 wheel nuts	370 Nm
Version with eight M20 wheel nuts	485 Nm
Version with ten M22 wheel nuts	700 Nm

NOTE: After replacing a wheel, have the wheel nuts torqued to the correct tightening torque by a DAF Service dealer.

15.1.5 Tyres

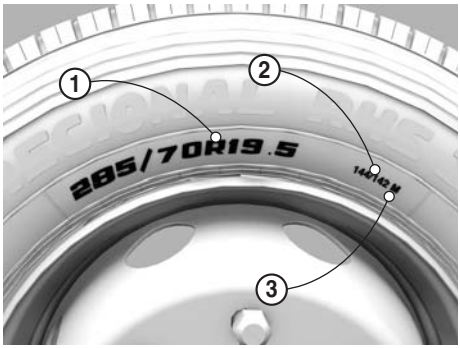
WARNING! Driving with tyres that are not specified for the vehicle or have incorrect pressures can lead to dangerous situations and serious injury. Incorrect tyre pressures can lead to unnecessary tyre wear, tyre damage or even a blowout. Too low tyre pressures also have a negative influence on the fuel consumption.

- ***Only use the specified tyre types. Consult a DAF Service dealer or a tyre dealer for more information about tyres.***
- ***Make sure that the tyre pressures correspond to the axle loads and are regularly checked.***

Tyre indication

Important tyre information can be found on the side of the tyre.

1. Tyre type and size
2. Load index
3. Speed index



D002127

Tyre type and size

An example of a tyre type and size is **285/70 R19.5**.
This tyre has a width of **285** mm. The height is given as a ratio to the width. **70** means the height is 70% of the width.
The **R** means the tyre is of a radial construction.
19.5 is the diameter in inches of the wheel that the tyre is designed to fit.

*NOTE: The size on some tyres is displayed in inches. An example is **11 R22.5**.*

Load index

An example of a load index code is **144/142**.
The load index is a standardised numerical code that indicates the maximum permitted load of a tyre. On truck tyres, there are often two load index numbers, for example 144/142. The first number (144) indicates the load index if the tyre is used in single formation. The second number (142) indicates the load index if the tyre is used in twin formation.

NOTE: A tyre must be replaced by one with at least the same load index.

Speed index

An example of a speed index code is **M**.
The speed index is a standardised numerical code that indicates the maximum permitted speed of a tyre.

The most common tyre speed rating codes with the associated maximum speed for trucks are:
- K - 110 km/h
- L - 120 km/h
- M - 130 km/h

Checking the tyre pressures

Tyre pressures depend on axle load and tyre type. The tyre type can be identified from the tyre indication on the side of the tyre.

Tyre pressure table

- The axle loads and corresponding tyre pressures shown in the table apply to normal operating conditions. For all other cases, refer to the specifications of the tyre manufacturer.
- The tables are divided into axle loads and wheel fittings:
  - Single tyres, 2000 - 6000 kg
  - Twin tyres, 2000 - 6000 kg
  - Single tyres, 6500 - 13000 kg
  - Twin tyres, 6500 - 13000 kg
- The tyre pressures shown in the table apply to cold tyres.
- Unnecessary tyre wear is frequently caused by vehicle operation with tyre pressures that do not match the axle load.
- For twin wheel fitting:
  - both tyres must be inflated to the same pressure;
  - the tread depth must be practically the same on both tyres.

Axle loads 2000 - 6000 kg

Single tyres, 2000 - 6000 kg

A	Type/size
B	Load index
C	Speed rating
D	Recommended pressure on axle loads (bar)
E	Maximum axle load (kg)
F	Pressure at maximum axle load (bar)

A	B	C	D									E	F
			2000	2500	3000	3500	4000	4500	5000	5500	6000		
9.5 R17.5	129	L/M	3.5	4.6	5.8	7.0							
10 R17.5	134	K/L/M		4.1	5.2	6.3	7.4					4220	8.0
11 R22.5	148	K/L/M					5.0	5.7	6.5	7.2	8.0	6300	8.5
12 R22.5	152	K/L						5.0	5.6	6.3	7.0	7100	8.5
205/75 R17.5	124	L/M	4.2	5.5	6.9							3200	7.5
215/75 R17.5	126	M	3.6	4.8	6.0							3400	7.0
225/75 R17.5	128	M	3.4	4.4	5.6	6.8						3600	7.0
	129	M	3.4	4.4	5.6	6.8						3700	7.3
235/75 R17.5	132	L/M	3.3	4.3	5.4	6.6						4000	7.8
245/70 R17.5	136	L/M	3.1	4.1	5.1	6.2	7.4					4480	8.5
245/70 R19.5	136	L/M	3.0	4.0	5.0	6.1	7.2					4480	8.3
265/70 R19.5	140	L/M	2.5	3.3	4.1	5.0	5.9	6.8				5000	7.8
285/70 R19.5	145	L/M	2.2	3.0	3.7	4.5	5.3	6.2	7.1	8.0		5800	8.5
	146	L						5.4	6.3	7.2	8.1	6000	9.0
275/70 R22.5	148	K/L/M					5.3	6.1	6.9	7.7	8.5	6300	9.0
275/80 R22.5	148	M					5.0	5.7	6.5	7.2	7.7	6300	8.5
	149	M						5.5	6.2	7.0	7.7	6500	8.5
285/60 R22.5	148	L					5.3	6.1	6.9	7.7	8.5	6300	9.0
295/60 R22.5	149	L						5.8	6.6	7.4	8.2	6500	9.0
	150	K/L						5.6	6.4	7.1	7.9	6700	9.0
295/80 R22.5	152	K/L/M						5.0	5.6	6.3	7.0	7100	8.5
305/60 R22.5	150	L/M						5.6	6.4	7.1	7.9	6700	9.0
305/70 R22.5	150	M						5.3	6.0	6.7	7.5	6700	8.5
	152	L/M						5.3	6.0	6.7	7.4	7100	9.0
	153	L						5.1	5.8	6.5	7.1	7300	9.0
315/60 R22.5	150	K						5.6	6.4	7.1	7.9	6700	9.0
	152	K/L/M						5.3	6.0	6.7	7.4	7100	9.0
	154	L							5.6	6.2	6.9	7500	9.0
315/70 R22.5	154	K/L						4.9	5.6	6.2	6.9	7500	9.0
	156							4.6	5.2	5.8	6.4	8000	9.0
315/80 R22.5	154	K/L/M							5.1	5.7	6.3	7500	8.3
	156	K/L/M								5.5	6.1	8000	8.5
	156	L								5.5	6.1	8000	8.5

Twin tyres, 2000 - 6000 kg

A	Type/size
B	Load index
C	Speed rating
D	Recommended pressure on axle loads (bar)
E	Maximum axle load (kg)
F	Pressure at maximum axle load (bar)

A	B	C	D									E	F
			2000	2500	3000	3500	4000	4500	5000	5500	6000		
9.5 R17.5	127	L/M							4.9	5.5	6.2	7000	7.5
10 R17.5	132	K/L/M							4.4	5.0	5.6	8000	8.0
205/75 R17.5	122	L/M					4.5	5.2	6.0	6.7	7.5	6000	7.5
215/75 R17.5	124	M							5.1	5.8	6.5	6400	7.0
225/75 R17.5	126	M							4.8	5.4	6.0	6800	7.0
	127	M							4.8	5.4	6.0	7000	7.3
235/75 R17.5	130	L/M								5.2	5.8	7600	7.8
245/70 R17.5	134	L/M							4.4	4.9	5.5	8480	8.5
245/70 R19.5	134	L/M								4.8	5.4	8480	8.3
265/70 R19.5	138	L/M								3.9	4.4	9440	7.8

Axle loads 6500 - 13000 kg

Single tyres, 6500 - 13000 kg

A	Type/size
B	Load index
C	Speed rating
D	Recommended pressure on axle loads (bar)
E	Maximum axle load (kg)
F	Pressure at maximum axle load (bar)

A	B	C	D									E	F
			6500	7000	7500	8000	9000	10000	11000	12000	13000		
12 R22.5	152	K/L	7.7	8.4								7100	8.5
275/80 R22.5	149	M	8.5									6500	8.5
295/60 R22.5	149	L	9.0									6500	9.0
	150	K/L	8.7									6700	9.0
295/80 R22.5	152	K/L/M	7.7	8.4								7100	8.5
305/60 R22.5	150	L/M	8.7									6700	9.0
305/70 R22.5	150	M	8.2									6700	8.5
	152	L/M	8.1	8.9								7100	9.0
	153	L	7.9	8.6								7300	9.0
315/60 R22.5	152	K/L/M	8.1	8.9								7100	9.0
	154	L	7.6	8.3								7500	9.0
315/70 R22.5	154	K/L	7.6	8.3								7500	9.0
	156	K/L	7.0	7.7	8.3							8000	9.0

A	Type/size												
B	Load index												
C	Speed rating												
D	Recommended pressure on axle loads (bar)												
E	Maximum axle load (kg)												
F	Pressure at maximum axle load (bar)												
A	B	C	D									E	F
			6500	7000	7500	8000	9000	10000	11000	12000	13000		
315/80 R22.5	154	K/L/M	7.0	7.6								7500	8.3
	156	K/L/M	6.7	7.3	7.9							8000	8.5
	156	L	6.7	7.3	7.9							8000	8.5

Twin tyres, 6500 - 13000 kg

A	Type/size
B	Load index
C	Speed rating
D	Recommended pressure on axle loads (bar)
E	Maximum axle load (kg)
F	Pressure at maximum axle load (bar)

A	B	C	D									E	F
			6500	7000	7500	8000	9000	10000	11000	12000	13000		
9.5 R17.5	127	L/M	6.8									7000	7.5
10 R17.5	132	K/L/M	6.2	6.8	7.4	8.0						8000	8.0
11 R22.5	145	K/L/M				5.3	6.2	7.1	8.0			11600	8.5
12 R22.5	148	K/L				5.0	5.7	6.5	7.2	8.0		12600	8.5
225/75 R17.5	126	M	6.6									6800	7.0
	127	M	6.6									7000	7.3
235/75 R17.5	130	L/M	6.4	7.0	7.6							7600	7.8
245/70 R17.5	134	L/M	6.1	6.7	7.3	7.9						8480	8.5
245/70 R19.5	134	L/M	5.9	6.5	7.1	7.7						8480	8.3
265/70 R19.5	138	L/M		5.3	5.8	6.3	7.3					9440	7.8
285/70 R19.5	143	L/M			5.3	5.8	6.7	7.6				10900	8.5
	144	L		5.0	5.5	5.9	6.8	7.8	8.8			11200	9.0
275/70 R22.5	145	K/L/M		5.0	5.4	5.8	6.7	7.6	8.5			11600	9.0
	145	M			5.1	5.5	6.3	7.1	8.0			11600	8.5
275/80 R22.5	145	M				5.5	6.3	7.1	8.0			11600	8.5
285/60 R22.5	145	L		5.0	5.4	5.8	6.7	7.6	8.5			11600	9.0
295/60 R22.5	146	L			5.2	5.6	6.4	7.3	8.1			12000	9.0
	147	K/L			5.0	5.4	6.2	7.1	7.9	8.7		12300	9.0
295/80 R22.5	148	K/L/M				5.0	5.7	6.5	7.2	8.0		12600	8.5
305/60 R22.5	147	L/M			5.0	5.4	6.2	7.1	7.9	8.7		12300	9.0
305/70 R22.5	148	M				5.0	5.7	6.5	7.2	8.0		12600	8.5
	150	L				4.9	5.6	6.4	7.1	7.9	8.7	13400	9.0
315/60 R22.5	147	K			5.0	5.4	6.2	7.1	7.9	8.7		12300	9.0
	148	K/L/M				5.3	6.1	6.9	7.7	8.5		12600	9.0
315/70 R22.5	150	K/L					5.6	6.4	7.1	7.9	8.7	13400	9.0
315/80 R22.5	150	K/L/M					5.3	6.0	6.7	7.5	8.2	13400	8.5
	153	L						5.4	6.1	6.7	7.4	14600	8.5

15.1.6 Lubricant, coolant and fuel specifications

To comply with the warranty terms and to guarantee the durability of DAF products, the correct lubricants, coolant, AdBlue and fuel must be used and the oil change intervals must be adhered to.

Ask the lubricant and fuel suppliers if their products comply with DAF specifications.
Never use additives to lubricants, coolant and fuel, unless instructed by DAF.

Always follow the safety instructions below and the instructions that are supplied with the product.

DAF is not liable for damage or problems in the following instances:
- If oil of a lower grade than specified has been used.
- If oil of a different viscosity than specified has been used.
- If the specified oil change interval has been exceeded.
- If fuel, lubricants, AdBlue or coolants have been used which do not meet the requirements specified by DAF.

WARNING! Physical contact with various fluids present in the vehicle will lead to serious injury and/or serious health problems.
Avoid physical contact with:
- ***Lubricants.***
- ***Coolants.***
- ***Fuel.***
- ***AdBlue.***
- ***Battery acid.***

Always follow the instructions below in case of physical contact with lubricants, coolants, fuel and AdBlue.
- If there is skin contact: remove the substance with paper or a cloth, wash with soap and water.
- Consult a doctor in the event of persistent irritation.
- If there is contact with the eyes: remove the substance with a soft cloth and rinse with water.
- Consult a doctor in the event of persistent irritation.
- If any fluid is swallowed: do NOT induce vomiting. Rinse the mouth, drink two glasses of water and consult a doctor.
- When inhaled: get some fresh air and rest.
- Use in a ventilated area.

Always follow the instructions below in case of physical contact with battery acid.
- If there is skin contact: rinse the skin profusely with plenty of water.
- Consult a doctor in the event of persistent redness or pain. Take off polluted clothing and rinse in water.
- If there is contact with the eyes: rinse with plenty of water for at least 15 minutes and consult a doctor.
- If any fluid is swallowed: do NOT induce vomiting. Rinse the mouth, drink two glasses of water and consult a doctor. When inhaled: get some fresh air, rest and consult a doctor.

Always follow the instructions below in case of any AdBlue or battery acid spilled on the vehicle.
– Flush any spilled AdBlue with plenty of water.
– Flush any spilled battery acid with plenty of water.

15.1.7 AdBlue

AdBlue must meet the specifications according to ISO 22241, which is replacing DIN 70070.

WARNING! AdBlue is a non-toxic fluid. However, physical contact can lead to minor injury.
– ***Avoid direct contact.***
– ***If there is contact with the skin: take off polluted clothing. Rinse the skin profusely with plenty of water.***
– ***If there is contact with the eyes, rinse for at least 15 minutes with plenty of water and consult a doctor.***
– ***If swallowed: do NOT induce vomiting. Rinse the mouth, drink plenty of water and consult a doctor.***
– ***When inhaled: get some fresh air, rest and consult a doctor.***
– ***Use in a ventilated area.***

Procedure after spilling
– Rinse with plenty of water.

Storage instructions
– Protect tanks from freezing.
– Use the original tanks only.
– Store in a cool, dry, well-ventilated area.
– Observe the manufacturer's storage instructions and directions for use.

CAUTION: Using incorrect or contaminated AdBlue leads to system malfunctions, OBD warnings and eventually to engine power derate and speed limiting.

15.1.8 Engine oil

DAF specifications lists refer to international standards, such as ACEA and API. Viscosity is also subject to specific requirements.

Explanation of overview:
V = may be used

Engine type	ACEA E9 10W-30	DAF Xtreme FE 10W30
PX-5	**V**	**V**
PX-7	**V**	**V**

15.1.9 Coolant

WARNING!

- ***If there is contact with the eyes: rinse with plenty of water for at least 15 minutes and consult a doctor.***
- ***Avoid prolonged or repeated contact with the skin. If there is contact with the skin: rinse the skin profusely with plenty of water.***
- ***If swallowed: do not induce vomiting. Rinse the mouth, drink two glasses of water and consult a doctor.***

Coolant fluid is toxic. Physical contact can lead to serious health problems.

NOTE: Coolant is harmful to the environment. Process it as industrial chemical waste after use.

The cooling system must be filled with a ready-mixed coolant containing antifreeze and corrosion-inhibiting additives.

Coolant identification

A sticker behind the grille states the information on the coolant used.

D001706

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Coolant according to DAF specification 74002

The table below lists the coolants that meet DAF specification 74002.
It is not permissible to fill the cooling system with a product other than the ones specified in this overview.

Brand name	Supplier
DAF Xtreme Longlife Coolant	DAF Trucks N.V.
TRP Long Life Coolant	DAF Trucks N.V.
EUROLUB Kühlerschutz D-30 (concentrate)	EUROLUB GmbH

PROCAR Kühlerschutz silikatfrei (concentrate)	EUROLUB GmbH
Havoline XLC/Havoline Extended Life Antifreeze Coolant	Chevron/Texaco/Arteco
Caltex Extended Life Coolant	Caltex
Glacelf Auto Supra/Coolelf Auto Supra	Total
G-Energy Antifreeze SNF	Gazpromneft-lubricants Ltd
Maxigel Plus/Ultracooling Plus	Renault Truck Oils
BP Procool	BP
Castrol Antifreeze SF Premix	Castrol
Castrol Radicool SF	Castrol
Inugel Optimal/Inugel Optimal Ultra	Motul
Yacco LR Organique	Yacco
Petrol Antifriz Koncentrat	Petrol
Orvema Protex Long Life/Coolmix LL	Orvema
SB-G12	Sotragel
York 718	Ginouves Georges SAS
Coolant Maxmaster Truckcool	Platinum Oil Wielkopolskie Centrum Dystrybucji
PS Longlife Coolant	Achtel
Maintain Fricofin LL	Fuchs Europe Schmierstoffe GMBH
Coolant concentrate Maxmaster Redcool	Platinum Oil Wielkopolskie Centrum Dystrybucji
Glysantin G 30-91	BASF
Polar Premium Longlife Antifreeze	Telko
Zero Longlife Antifreeze	Telko
Kuehlerfrostschutz KFS 12 Plus	LIQUI MOLY
Kuehlerfrostschutz KFS 2001 Plus	LIQUI MOLY
Langzeit- Kuehlerfrostschutz GTL 12 Plus	LIQUI MOLY
Coolant Ready Mix RAF 12 Plus	LIQUI MOLY
Glidex Extra	PPH Chemia Bomar
Repsol anticongelante refrigerante organico maximum quality	Repsol lubricantes y especialidades, S.A.
Shell Engine Coolant Longlife	Kemetyl Group Ltd
Shell Premium Antifreeze Longlife	Kemetyl Group Ltd

Kemetyl Glycocool Longlife Antifreeze 774 D-F	Kemetyl Group Ltd
Kemetyl Carix Premium Longlife	Kemetyl Group Ltd
Borygo Premium Extended Life	BORYSZEW ERG S.A.
EVOX Premium Concentrate	MOL-LUB Kft
NISOTEC ANTIFRIZ LONG LIFE 100	NIS a.d.
Glixol Long Life	Zakłady Chemiczne ORGANIKA S.A.

15.1.10 Diesel fuel

Based on the present status of DAF engine development, the fuel (compositions) used must meet certain international standards to be assured of the required engine performance, durability and emission goals. Therefore DAF prescribes for all its engines that:

– Any diesel or alternative fuel mixture must fully comply with European Fuel Standard EN 590. Biodiesel must comply with European Biodiesel Standard EN14214.

CAUTION: Fuel additives are not permitted.
The use of these fuels leads to system malfunctions, OBD warnings and engine power derates.

15.1.11 Clutch

Hydraulic clutch	DOT 4 brake fluid

15.1.12 Steering gear

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Steering box oil

Hydraulic power steering	DEXRON III with valid approval number.

15.1.13 Cabin tilt mechanism

Cabin tilting gear oil must meet MIL-H-5606C.

The following may be used:	ESSO Univis J13 TEXACO Aircraft Hydraulic 5606G TOTAL Aerohydraulic 520

15.1.14 Chassis

Chassis lubricant

Lubrication grease:	Lithium-based grease, NLGI 2

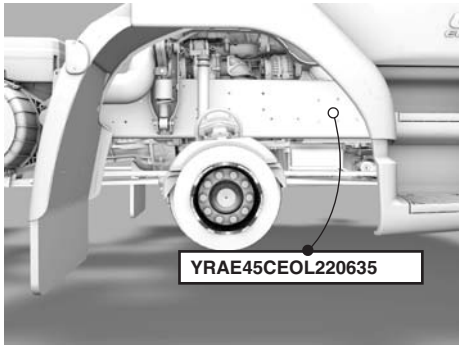
	EP quality
Automatic greasing system:	Lithium based EP additive grease, NLGI 0

15.2 IDENTIFICATION

15.2.1 Chassis number

The chassis number (Vehicle Identification Number) is stamped in the right-hand chassis side member close to the front axle.

NOTE: The chassis number can also be displayed on the master display, see section 'Menu overview' in chapter 'Master display'.
It is also present on the vehicle identification plate.



D002023

15.2.2 Vehicle identification plate

The vehicle identification plate is attached to the left-hand door pillar.

D002021

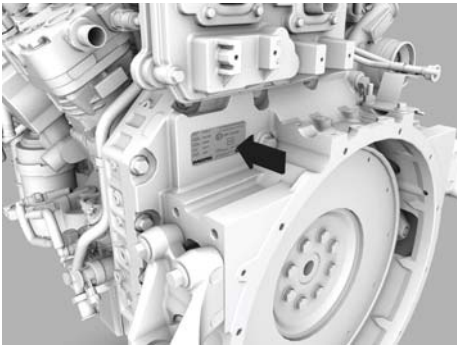
15.2.3 Paint identification plate

The paint identification plate is attached to the bulkhead behind the grille.

D001220-2

15.2.4 Engine number

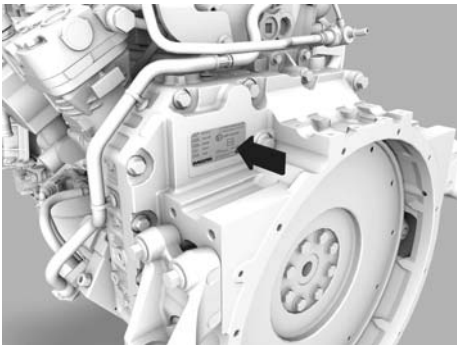
Location on PX-5 engine



D002022

Location on PX-7 engine

The engine number is stamped on the engine.

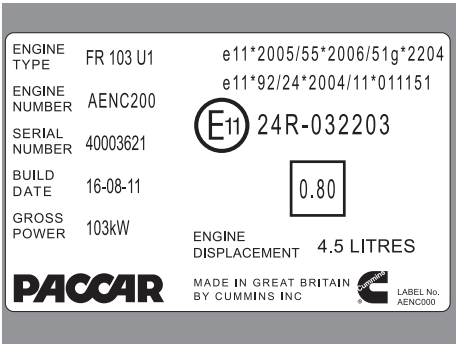


D002035

15.2.5 Engine identification label

Engine identification label

The engine identification label is attached to the top of the flywheel housing. It states the engine data like engine type and engine number.



D002049

Emission label

The emission label is located on the stepwell of the driver's door. It states emission related engine data like free acceleration smoke level (K factor).

D001416

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DATA TO BE ENTERED BY THE DAF DEALER

Dimensions:	height	.....
	length	.....
	width	.....
Max. permissible weight:	.....	tonnes
Fuel tank capacity:	.....	litres
AdBlue tank capacity:	.....	litres
Key numbers:	fuel tank	.....
	ignition switch	.....
	door	.....

Tyre pressures

Axle	Tyre size	At minimum axle load	At maximum axle load
1st axle			
2nd axle			
3rd axle			
4th axle			
5th axle			

See the driver manual section 'Tyre pressure table' in chapter 'Technical data and identification'.